MARCH, 1921

THE MINING CONGRESS JOURNAL

VOLUME 7 NUMBER 3

In This Issue:

Chicago the Next Convention City

Coal Regulation Fight to be Renewed in Next Congress

Twenty-Five Mineral Industries Seek Tariff Protection

Gold Legislation Campaign Continues

War Labor Agreements Bearing Heavily Upon the Railroads

A Close-Up of the Men Who Handle Your Federal Tax Returns

Table of Contents Page 5

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CONTENTS

EDITORIALS — Page

Freight Rates and Wages — 81
A Lesson From Russia — 81
World Peace Would Help Copper — 81
Results of Organization — 82
Future Federal Taxation — 82
Gold is the Crux — 82
State Regulation of Coal in Indiana — 83
Engineers in Politics — 83
World's Monetary Gold Surplus — 84
Last Year and This — 84
When Doctors Disagree — 85
The Gompers Rebellion — 85
Coal and the Calder Bill — 85

COAL REGULATION FIGHT EXPECTED TO BE RENEWED IN NEXT CONGRESS — 87

GOLD LEGISLATION CAMPAIGN ADVANCES — 90

CHICAGO THE NEXT CONVENTION CITY — 93

A CLOSE-UP OF THE MEN WHO HANDLE YOUR FEDERAL TAX RETURNS — 95

TWENTY-FIVE MINERAL INDUSTRIES SEEK TARIFF PROTECTION — 99

METALS PAY LARGEST PROPORTION OF U. S. INCOME TAXES — 103

WORLD MARKET CONDITIONS SUMMARIZED BY COAL EXPORT COMMITTEE — 106

President Loring Urges United Effort — 86
Plans for Correlating Mine Standardization Work — 86
Tidewater Coal Exchange Organized — 88
Trade Commission Makes Final Coal Cost Report — 88
Navy Criticized for Failure to Develop Alaskan Coal — 88
Amounts of Fuel Consumed by Units of Navy — 89
Government Used Inferior Coal — 89
Edwin Ludlow Heads A. I. M. E. — 92
Lyon Sees Independent U. S. Ceramic Industry — 94
Mineral Land Withdrawals and Restorations — 94
Chromite in 1918 and 1919 — 94
J. C. Dick Leaves Revenue Bureau — 98
Income Tax Unit Head Resigns — 98
Hope Revived in the West, Dr. Holbrook Finds — 98

Page

South's Mineral Industries Seek Protection — 102
Governor Parker Requests Aid of Mines Bureau — 102
Vast Wealth Recovered from Junk and Scrap — 102
Payne Tells How He Disposed of War Minerals Claims — 103
Detective Agency Charged with Promoting Labor Strife — 103
Surveyor General Offices may be Abolished — 104
Lack of Oil Gaugers Hurts Lessees and Government — 104
Colorado Feldspar-Mica Fields to be Developed — 105
Lime Production in 1920 — 105
Butte's Claims for Experiment Station — 105
Glacier National Park Highway — 105
"Mountains of Shale" Not on Easy Street — 108
Lessons from Memphis Gasoline Disaster — 108
Methods of Computing Oil Royalties — 108
Gold and Silver Imports and Exports — 109
War Minerals Appeals Campaign Causes Controversy — 110
Council of Defense Begins to go Out of Business — 113
Oil and Gas Permits — 114

NATIONAL LEGISLATION
Epitome of Bills Introduced — 111

TRANSPORTATION
War Labor Agreements Bearing Heavily Upon Railroads—Iron Ore and Copper Rates—Tonnage Statistics—Cost of Fuel and Repairs—Car Loading—Reparation — 116

PUBLIC OPINION
Government Interference in Business as Viewed by Leading Lawmakers — 117

MINING AND PETROLEUM DIGEST
Coal Mining a Healthy Occupation—Plutocratic Coal Diggers—Copper Financing—Moving a Whole City—Southern Iron Ore Development—Manganese in Alabama—Arkansas Platinum—World's Interest in Mining — 120

PATENTS — 121
INDEX TO ADVERTISEMENTS — 48

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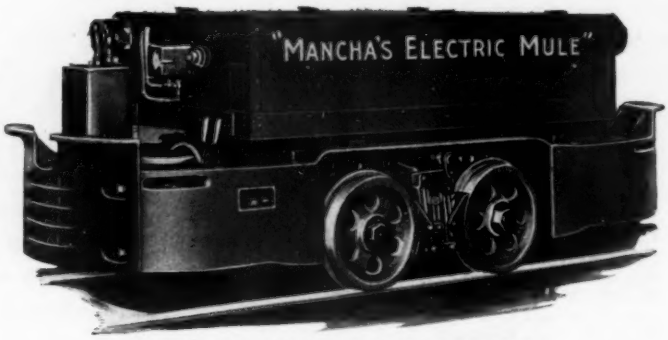

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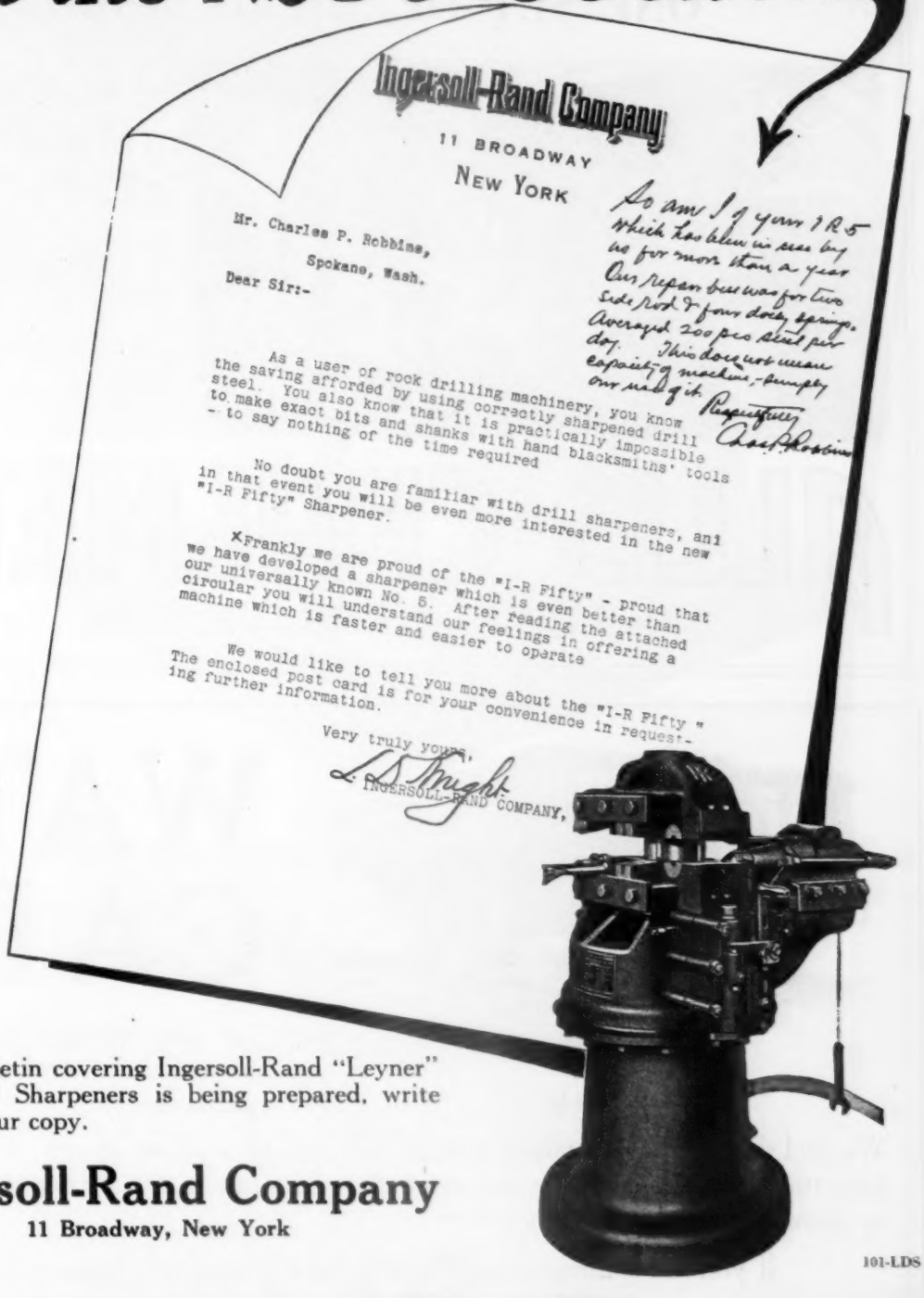

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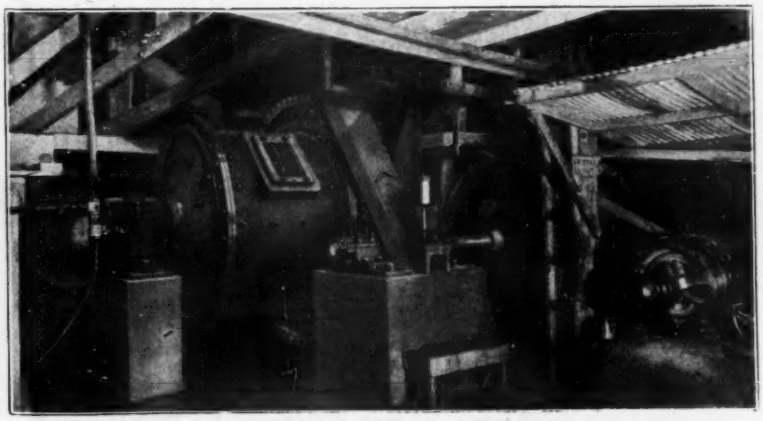

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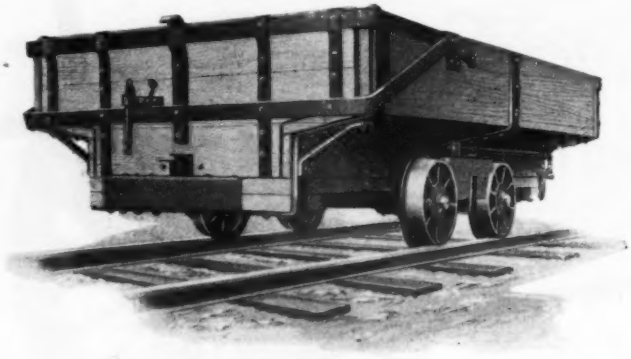

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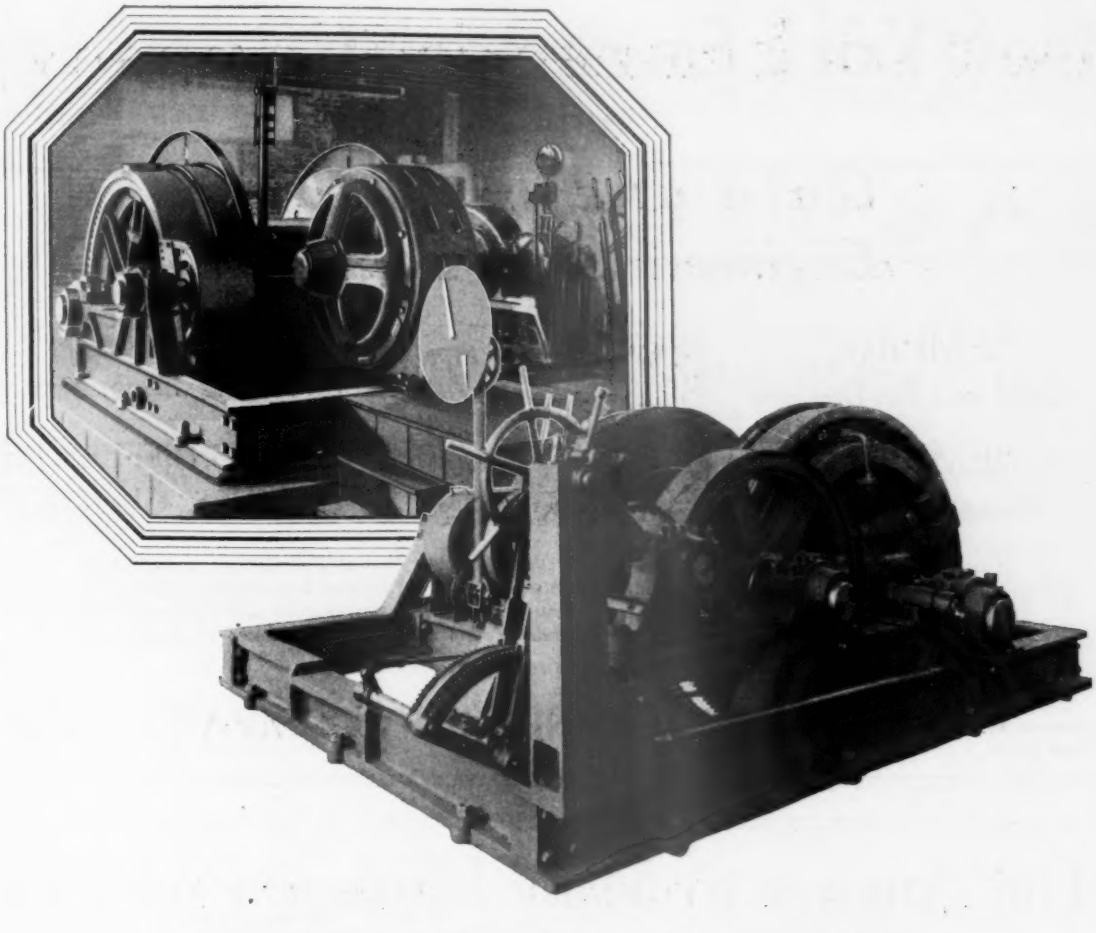

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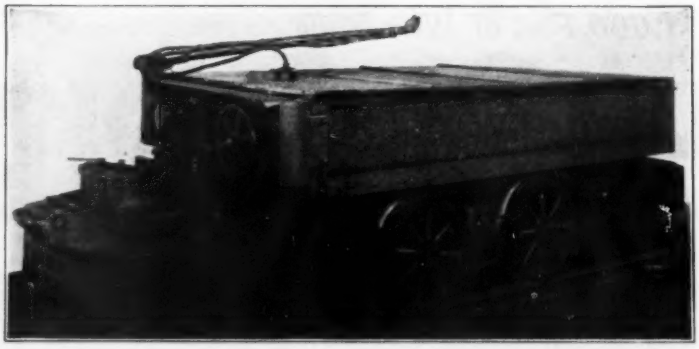

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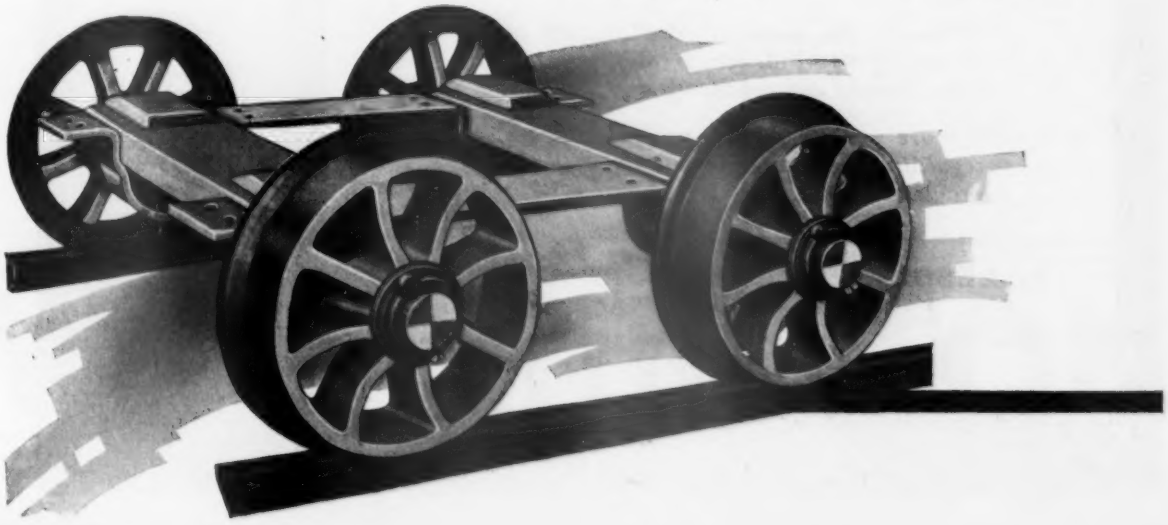

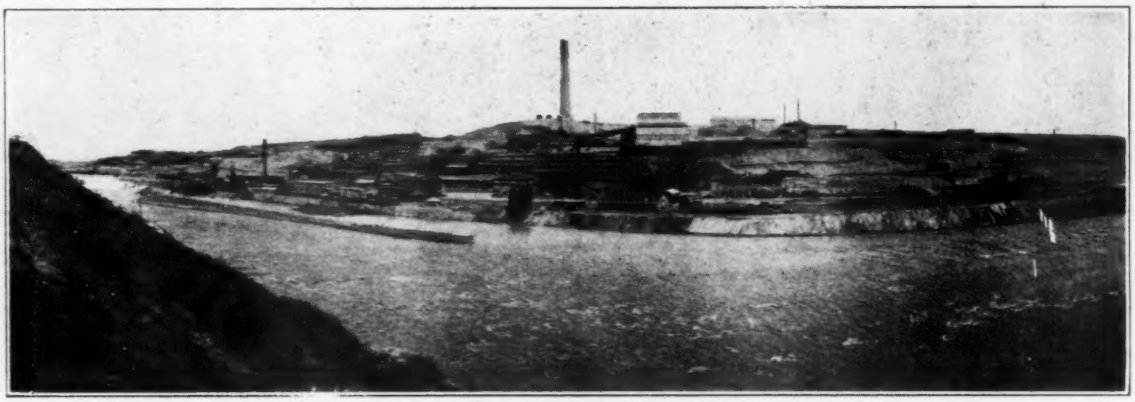

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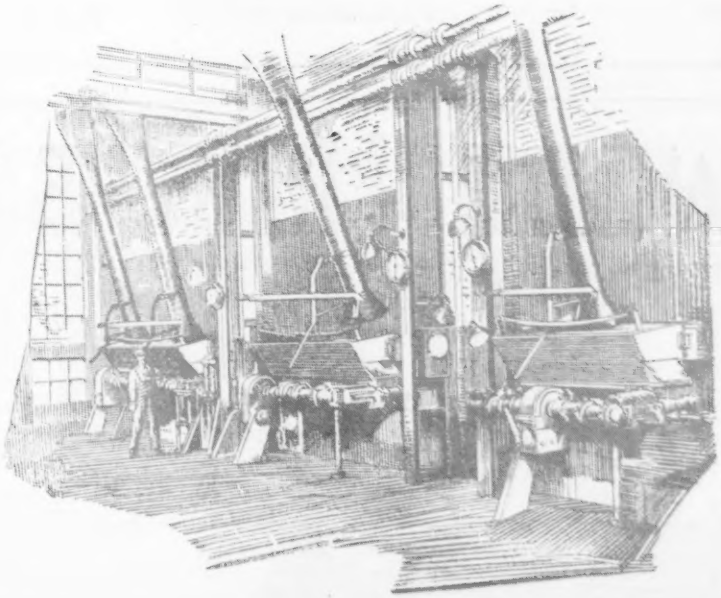

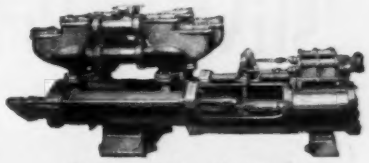

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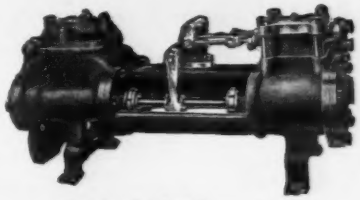

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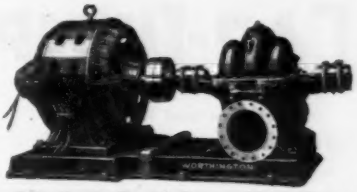

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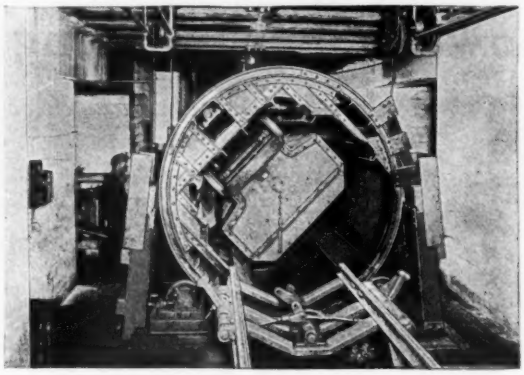

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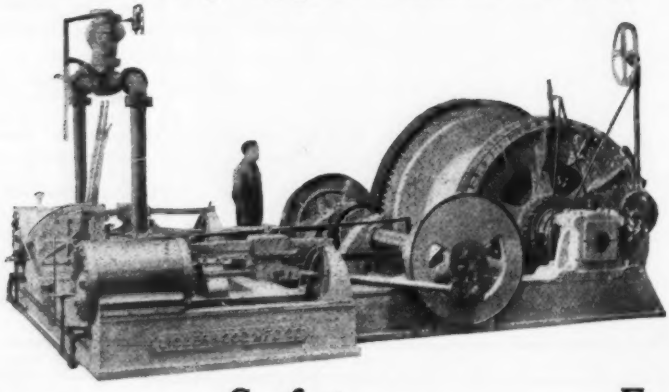

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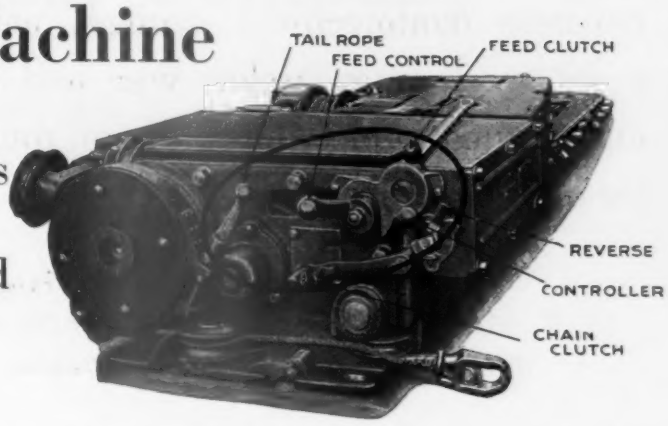

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Owner or Operator	Location	Number of Ovens
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Illinois Steel Company	Gary, Ind.	700
Tennessee Coal, Iron & R. R. Company	Fairfield, Ala.	434
Minnesota Steel Company	Duluth, Minn.	90
Carnegie Steel Company	Clairton, Pa.	768
American Steel & Wire Company	Cleveland, O.	180
National Tube Company	Lorain, O.	208
Woodward Iron Company	Woodward, Ala.	170
Coal Products Mfg. Company	Joliet, Ill.	35
Algoma Steel Corporation, Ltd.	Sault Ste. Marie, Ont.	110
Inland Steel Company	Indiana Harbor, Ind.	130
Republic Iron & Steel Company	Youngstown, O.	143
Bethlehem Steel Company	Sparrows Point, Md.	360
Bethlehem Steel Company	South Bethlehem, Pa.	424
Bethlehem Steel Company	Steelton, Pa.	60
Laclede Gas Light Company	St. Louis, Mo.	56
Cambria Steel Company	Johnstown, Pa.	92
Toledo Furnace Company	Toledo, O.	94
Youngstown Sheet & Tube Company	Youngstown, O.	306
LaBelle Iron Works	Follansbee, W. Va.	94
United Furnace Company	Canton, O.	47
McKinney Steel Company	Cleveland, O.	204
Brier Hill Steel Company	Youngstown, O.	84
Gulf States Steel Company	Gadsden, Ala.	37
Seaboard By-Product Coke Company	Jersey City, N. J.	165
Minnesota By-Product Coke Company	St. Paul, Minn.	65
Colorado Fuel & Iron Company	Pueblo, Colo.	120
Indiana Coke & Gas Company	Terre Haute, Ind.	30
Dominion Iron & Steel Company, Ltd.	Sydney, N. S.	180
Providence Gas Company	Providence, R. I.	40
Jones & Laughlin Steel Company	Pittsburgh, Pa.	300
Rainey-Wood Coke Company	Swedeland, Pa.	110
Alabama By-Products Corporation	Birmingham, Ala.	50
Donner Union Coke Corporation	Buffalo, N. Y.	150
Domestic Coke Corporation	Fairmont, W. Va.	60
Pittsburgh Crucible Steel Company	Midland, Pa.	100
Chicago By-Product Coke Company	Chicago, Ill.	100
Milwaukee Coke & Gas Company	Milwaukee, Wis.	150

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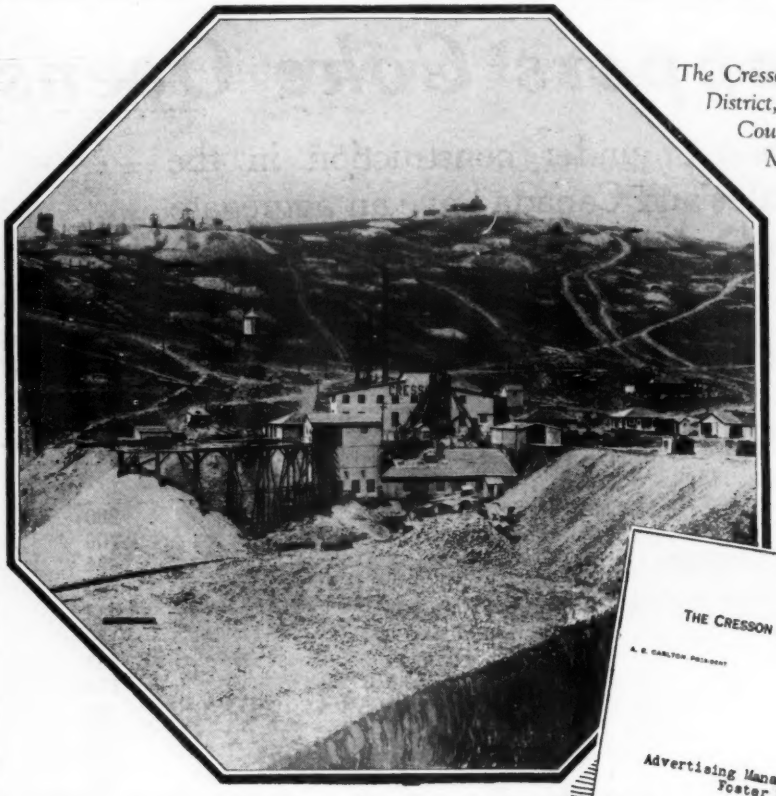

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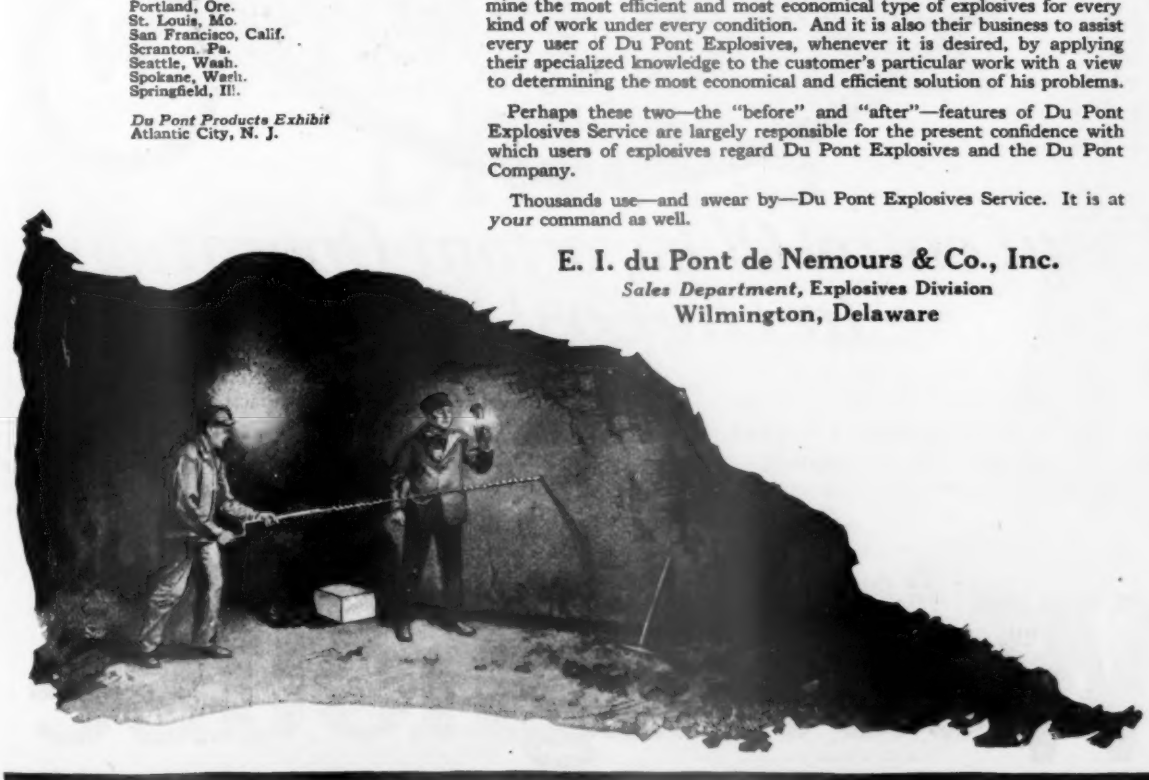

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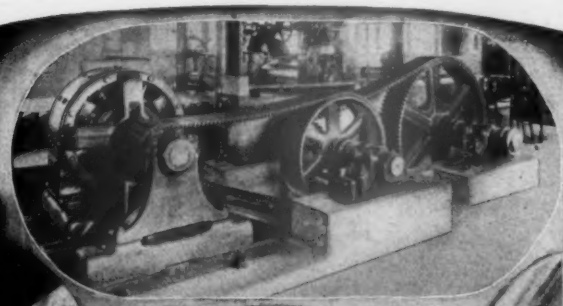

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FREIGHT RATES AND WAGES

SEVERAL MONTHS AGO the MINING CONGRESS JOURNAL predicted that the earnings of the railroads during the last six months of 1920 would be less than the first six months, notwithstanding the increased transportation rates. Unfortunately, this prediction has been more than justified, partly for the reason upon which it was based, and partly because of a slackening up in business activity. To what extent the increased freight rates influenced the business depression, cannot be determined. Certain it is that all business depends very largely upon transportation. Nothing has any value until it has been removed from the point of origination. Most articles need to be changed in form as well as to be removed from place to place. If wages are so high and other manufacturing expenses so great as to make the product too expensive for general use, or if the cost of transportation is made so high as to put the finished articles beyond the reach of the mass consumer, production in that line must necessarily slacken. The last increase in freight rates made the total approximately two hundred and three percent of the normal prewar freight rate. Freight rates of the future, and wages of the future, must be based upon the buying power of the nation to consume the articles made available by these joint agencies. Capital may remain out of use but workers must be employed and railroads must be operated else the one starves and the other decays.

Assuming that the freight rates of pre-war days were comparatively low and that a slight advance might have been then justified, even this assumption does not justify the enormously high freight and passenger rates which the public must now pay for this class of service. Railroad business must necessarily fall off except under conditions which will keep the price level up to the two hundred percent point. Just now the railroad executives are proposing that the Railroad Labor Board shall reduce the scale of wages paid to the workmen. The public will approve this reduction only with the understanding that its transportation service is to be lowered in cost. If railroad rates are to be kept up to the present levels, then the public will approve the present standard of wages. *Railroad executives may as well understand now as later, that the public will not approve an assault upon the wage scale except with a satisfactory understanding that transportation rates will be reduced in similiar propertion.*

Gentlemen who have appeared before the Ways and Means Committee asking for protection upon shoes, but free hides and leather, those who want no protection upon wool but do want woolen clothes heavily protected have had the fallacy of their position made most apparent. The public mind approves the stand of the Ways and Means Committee as to tariff duties, and stands for the same principle as to railroad wages. If wages are to go down as they should, then all other living costs must go down proportionately, and among these a very important expense is that which is paid for railroad service.

A LESSON FROM RUSSIA

EVEN AS EVERY GOOD government invariably makes mistakes, so does the worst of governments sometimes do something right. In the most impractical of administrative systems common sense is occasionally evident. Evidence of such a situation, where "capitalistic" business judgment has prevailed over communistic theorizing, has recently come from Russia.

It appears from documents secured with great difficulty by the International Labor Office that the Soviet authorities created a commission to fix the hours of labor and rates of pay for the proletariat. From the rules and regulations applying to metal workers, made by this commission in cooperation with the labor union involved and approved by the Commissariat of Labor, the following paragraph is taken:

"It is enunciated as a principle that since the worker has a guarantee of salary, he in his turn must guarantee a fixed quantity of labor. If under normal technical conditions he fails to reach normal production he is only entitled to two-thirds of his wages."

The doctrine of a full day's work for a full day's pay, is good, sound, common sense, even if it does come from Russia, and now when increased production and an honest day's work for an honest day's wage is a pre-requisite to the maintenance of proper living standards, careful and thoughtful consideration of its import is recommended to American workingmen.

WORLD PEACE WOULD HELP COPPER

WORLD PEACE and re-establishment of foreign credits will bring prosperity to the copper industry, in the opinion of the Secretary of Labor. In a formal document, the Secretary recently pointed out that to appreciate the industry's dependence upon foreign trade it is only necessary to recall that before the war from forty to fifty percent of American production was exported.

"Restoration of the industry to normal conditions, therefore, depends upon a combination of peace-credits and transportation," the Secretary said. "Given these and the markets will be found, and once more this great industry will catch up with the onward industrial march in prosperity, in which the employers will share with their employes in a great measure the 'ways and means' that make for neighborliness and continued industrial, peace."

RESULTS OF ORGANIZATION

DURING THE YEAR 1918, mining and quarrying corporations, in computing taxable net income, were allowed deductions of $333,236,911 for exhaustion, amortization and depletion. Until the American Mining Congress convinced the Congress of the United States that mining problems were different from those of any other industry, no allowance was made for exhaustion and depletion. The amount of taxes saved in one year would not only support the Mining Congress for several centuries, but if invested would return an income which would enable it to function throughout all time. Moral-Support of the American Mining Congress is an investment which draws down dividends.

FUTURE FEDERAL TAXATION

THE THIRD AND LAST SESSION of the Sixty-sixth Congress comes to a close and the much discussed reformation of the Federal war tax laws has not been accomplished. The tremendous revenue program initiated in 1917 is still the most conspicuous and important, albeit most unpopular, part of our fiscal system. But whatever the political, practical or other considerations that deterred the retiring Congress from acting in its three sessions, it is safe to assume that the legislative wheels will begin to turn soon after the convening of the special session of the new Congress. The government itself is very much concerned as to the future yield of the existing system, based as it is largely on the extraordinary industrial profits of war time.

The first task of the Congressional committees is to determine approximately how much revenue must be raised. From the size of the appropriation bills and the rather dismal forecasts of Treasury officials, it looks like a problem of how much, and not how little. To ascertain the exact amount required is quite a task in itself, but by no means the most important. Under our democratic form of government, lawmakers at least attempt to ascertain the public state of mind, and to learn what the tax-paying public is willing to endure as to method of taxation. It is a wholesome aim, but just about an impossible accomplishment. The public, as a whole, does not know exactly what it wants. The reason is not difficult to find.

All of the standard adjectives, and not a few new ones, have been employed by public speakers here and there in the last two years in denouncing the complexities of the entire war revenue system, with the excess profits tax the most popular target. And while the excess profits tax has perhaps been a little overloaded with blame for our economic ills, it is unquestionably guilty of sufficient crimes to merit its probable fate of simple extinction. But the complications, vexations and complementary influences of the excess profits tax are merely subsidiary evils. If we be honest, the chief complaint is that against excessive and over-progressive taxation. He who complains most is usually he who is hurt most, and he who feels he is hurt most is usually he who pays more than his share as compared with his neighbor. The demands of our Federal treasury are imperious and voracious. If we can expect no material reduction in the government's requirements, what can we expect of tax revision? A more equitable distribution. That implies reducing the burden of A, but increasing the assessment upon B. The A class may then feel a little better, but what of B? A may have paid too much and B too little, but B won't acknowledge it. The A class, as part of the public, knows what it wants, but B and A combined, the public as a whole, have no common want. Those public-spirited business men who a year ago began the creditable effort to unite the business thought of the country, that a single comprehensive program might be laid before Congress, have had their hopes rudely shattered. It is small wonder that congressmen are bewildered by the cross-fire of scores of different agencies which have failed to compromise and which will probably find Congress compromising for them, as predicted in these columns some months ago.

It is no sense of hypercriticism that occasions this view of the situation. Ventures involving unusual hazard, with perhaps the reward of risk and patience realized in a brief space of time, scarcely warrant the same rate of excess taxation as the safer and more permanent enterprise. Earned income at least idealistically merits more moderate levies than unearned increment. And so on. But whatever the pure equities, the element of human nature cannot be ignored. We have not yet reached that Utopian state where concurrence of thought is to be had in the leveling process of abstracting from one for the benefit of another.

The call for a more equitable spread of the tax burden is urgent and essential, but the true problem of our Federal taxation will not find its answer in mere adjustment. Successful tax revision can involve but one main operation, that of downward revision. We can twist and turn, applying the screws a little harder here and a little lighter there, but after all it is merely temporizing. The worst woe would be a complete revolution of methods, forsaking principles and clutching at panaceas and dubious experiments. The real solution is lower taxes, not "squarer" taxes.

In these days of familiar references to "best minds" and "master minds" attention should be called to the niche in history that awaits him who can reduce the volume of the nation's great burden.

GOLD IS THE CRUX

IN PARIS on January 28, Edwin L. James of the *Chicago Tribune*, at a dinner held at the conclusion of one of the Reparation Conferences, asked Premier Lloyd George, "What is the hardest problem of the reparations situation?"

"It is this" he replied, "all allied nations are agreed that Germany must pay indemnity by exports. All allied nations also are agreed they do not want German exports.

"France thinks England should take German exports and enable Germany to pay reparations with what we would owe. We think France stands much more in need of German exports than we do, and your own Mr. Harding said he was determined on one thing—that Europe should not pay her debts to American by sending goods.

"Every nation wants to protect its own industries—every nation wants to collect its debts. Germany has not gold enough to pay the allies. The allies have not gold enough to pay the Americans, and everybody wants to be paid in gold.

"To find an answer to this situation is not only the hardest reparation problem; it is the hardest problem of the whole world today."

That gold is the crux of the economic readjustment of the world is the pronouncement of this statesman, who is noted for his hard-headed business judgment and common sense. The readjustment of the world's business is now being delayed on account of limited national gold reserves. A mere shifting of the gold stock of the world from one country to another will not in itself increase the monetary stock, which has actually declined approximately $400,000,000 since 1915. Inasmuch as these gold reserves have been built up from the production of the mines, it would seem now quite natural that nations should

look to sources of new production wherewith to rehabilitate their reserves.

Some of our theoretical economists state that the production of the world is so small a percentage of the monetary gold reserve that at best it could have little effect. In 1910 the world's production of new gold amounted to 7 per cent of the total monetary gold stock of the world; in 1920 the production ratio of the gold is estimated at 4.4 percent. In 1910 the gold production of the United States amounted to 5.7 percent of the total gold stock of the nation; in 1920 the ratio of production to the gold stock was but 1.8 percent.

Since 1910 there has been a marked increase in the amount of gold diverted from monetary use and consumed in the manufacture of jewelry. This has to a large extent lessened the amount of new gold available for monetary purposes and has contributed greatly to the shortage of gold which now confronts the world as one of its most important problems. Had the gold production of the world increased during this period, or even maintained its normal rate, the effect of this industrial drain would not have been so seriously felt.

The economists state that because of the increased banking facilities, a smaller amount of gold has been able to do a greater amount of work during this period of inflation. It is therefore a direct deduction that the same amount of gold as would have come to the monetary gold stock of the world through normal production would have now even a more beneficial influence than heretofore in the financial structure of the world system. An examination of the facts proves this to be true. The ratio of the monetary stock of the world to the paper money circulation in July, 1914, was 66.3 percent; in 1920, was 9.2 percent. In other words a gold dollar in 1914 was required to support but 1.5 dollars in paper currency, while in 1920 this burden upon each gold dollar had grown to more than ten dollars in terms of the world's note circulation. In terms of the credit as well as the currency which are superimposed upon the monetary gold stock, this figure would be greatly multiplied. In our own system a dollar in gold now supports between twenty and thirty dollars in expanded credit and currency. There are two means for reducing inflation: the first, to increase the gold held against the note circulation; and second, by reducing the volume of the note circulation.

The argument that the addition of gold to the reserve would have a tendency to create inflation is based upon the assumption that it would be used to increase the note circulation, while it is wholly under the power of our financial authorities in the government to build up the reserve and to reduce the note circulation, thereby accomplishing a greater deflation than could possibly take place without injury to our industry by the process of reducing the note circulation alone.

The gold producing power of the United States is seriously threatened by the loss of ore reserves incidental to the closing down of the mines. Even though this were not a sufficient consideration the invigorating effect of a larger production of new gold for monetary use will maintain confidence in our currency and financial system and will greatly accelerate a safe return to normal business conditions. In the interests of the public welfare, therefore, the government should adopt a temporary expedient to tide the gold mining industry over this period of economic stress.

THE UNEMPLOYED of Newport News have been given the choice of going to work, leaving town or going to jail. Wonder which of the latter two they will choose?

STATE REGULATION OF COAL IN INDIANA

COAL PRODUCTION in Indiana is one of the primary factors in the industrial wealth of the state. The average annual production of coal, roughly figured, is approximately 22 million tons, and the annual return for the sale of this coal amounts to between seventy and eighty millions of dollars. The bulk of this return goes to labor and is therefore widely scattered throughout the population of the state.

It has long been recognized that coal mining is a hazardous and difficult business enterprise requiring an unusual amount of business acumen and energy on the part of the producer in order to secure a profit over any period of years.

In view of these facts it might be expected that the state government and the general business public would do everything in their power to cooperate with and assist the permanent coal operators in building up and stabilizing the industry. Unfortunately, in spite of the essential character of the coal industry, the general public has shown little interest in coal production except when an emergency arises creating a sharp increase in the demand and an ensuing scarcity of coal on the market. When such an emergency arises, due invariably to causes quite beyond the control of the coal operators, the public becomes frightened and an excuse is furnished for professional politicians or well meaning, but misguided, organizations to urge the creation of governmental agencies for regulating the coal industry.

As a result of the peculiar emergency in 1920, the State of Indiana, through its Legislature, passed a bill in July, 1920, creating a Food and Fuel Commission with powers to fix prices and to control distribution. This commission, as usual, concentrated its efforts on the coal industry, started an investigation, and after voluminous testimony fixed prices for coal.

Results of the work of this commission were, first, it created a great deal of disturbance in the industry; second, naturally many Indiana operators found it advantageous to sell their coal in other states and consequently a considerable number of large coal retailers in Indiana stocked up with coal purchased at higher prices than would have normally been paid for Indiana coal, from Illinois and other adjoining fields. Finally, coal operators took the matter into court and the courts enjoined the Commission from executing its arbitrary powers.

In 1920 and in the early months of 1921, the coal situation passed very rapidly from a period of extreme scarcity to a period of surplus coal. As a result largely of the interference of the state government, many coal dealers found themselves with supplies of coal purchased at high prices from adjoining states, and there is some reason to believe that the general public in Indiana is paying higher prices for coal than would otherwise have been the case.

The experiments of the State government in Indiana in attempting to regulate the coal industry are additional evidence of the well known fact that it does not pay from any standpoint to monkey with the buzz saw of industrial and economic production and distribution through the creation of temporary semi-political machinery which, if it is to achieve any beneficial results, must make an exhaustive study of conditions and analyze the information which the permanent operators in the coal industry have learned as the result of many years of painstaking, careful and sometimes bitter experience.

ENGINEERS IN POLITICS

MEMBERS of the Chicago Chapter of the American Association of Engineers have gone into politics and their Political Action Committee has published an appeal to all members of the craft to follow

suit. If their object is what it appear to be, namely, to improve government by inducing business men to take an active hand in all elections everywhere, their activity is worthy of emulation.

Too long have the majority of reputable business men stood aloof from pre-election activities only to stand aghast at election results. While "prominent citizens" eschew politics, they may expect to be eschewed by politicians. Unless they stand their ground before election, they will have to stand for being ground after election.

Through the columns of the *Professional Engineer*, the Chicago Chapter offers to members of the A. A. E. the following advice:

"Engineers are urged to make the acquaintance of the local official of their party and offer themselves as recruits in ward politics. . . . Get in on the ground floor of politics. Work up in the organization of your party—don't stand aloof and then criticize when results are unsatisfactory. Lead the other engineers in your precinct to exert a wholesome influence in politics."

And lest some engineer still persist in believing that his influence as a citizen, exerted after election, is all that is needed, the Political Action Committee adds the following:

"There is no royal road to political purity. Reform means work. It means that engineers should join some organization. They should canvass for votes, be willing to serve as judge or clerk of election, precinct captain or watcher, contribute to the campaign fund, respect the princinct worker and not consider him a sucker, avoid loose talk of graft, vote for what is right rather than try to pick the winning ticket, be influenced by argument rather than persuasion, get acquainted with the neighbors. Not only do these but get others to do them."

If the word "engineers" be eliminated from the above paragraphs and "all business men" inserted, the advice will be even better than it is, although it is mighty good advice as it stands. The one thing the government of the United States and of most states, cities and counties needs more than anything or all things else is better business methods. And the only way business methods can be injected into government is for business men to inject themselves into politics.

Mercantile concerns have regard primarily for their creditors, their customers and their prospective customers. Hope of continued profits dictates such a course. Exactly the same course is followed by men who make and administer the laws. To them office holding is a business, and as business men they have regard primarily for those persons and those interests who placed them in office and upon whom they rely to keep them in office. This is the natural, the normal thing for them to do; seldom indeed is an office holder so unselfish, so patriotic that he does anything else.

Neither engineers nor miners nor other business men can secure desired political results without working actively, personally and at every election for them. When the prohibitionists went into ward politics and pledged every candidate, high and low, to their cause the country went dry without further delay. When the railroad brotherhoods went into politics they forced the entire national administration to capitulate. And when business men generally come to recognize that government is the biggest business in the world and that they are the heaviest stockholders, and when they give this business the personal thought and attention they always bestow upon their minor interests, the country will have progressed a long way toward that desirable condition when we shall have "less government in business and more business in government."

WORLD'S MONETARY GOLD SURPLUS

SAMUEL MONTAGU & CO. of London, in their statement of February 3 quote the authority, Mr. Joseph Kitchin, as follows: "'The 1919 world's gold production was £75,200,000; of this, industry took £22,000,000; India £27,700,000 (year to March 31st, 1920) and China £13,500,000, leaving only £12,000,000 for addition to the stock of money to the rest of the world. Industry probably took £22,000,000 of the £70,000,000 produced in 1920. The absorption of India and China will probably be found to leave a figure almost as small in 1920 as in the preceding year for the world's stock of money. The addition used to be £50,000,000 or more per annum.'"

On account of the diversion for the last two years of the newly produced gold into industry and the Oriental countries, the amount of newly produced gold available for monetary purposes has been reduced from about $250,000,000 or more per annum to less than $60,000,000 during 1919 and 1920. It is regrettable that so much gold is thus diverted from monetary use at a time when the world's demand for monetary gold is so great. This diversion explains to a large extent the continued depreciation of European exchange, which has operated to so seriously impair the purchase power of Europe in our markets. A continued decline in the production of new gold, coupled with so extensive a diversion as has taken place during the last two years, will postpone the financial recovery of Europe and still further limit our export trade.

The Director of the Mint reports that $75,500,000 of gold was consumed in the industrial arts in 1919, which is three-fourths of the amount presented by Mr. Kitchin for the world's industrial consumption. The production of new gold in the United States declined from $101,000,000 in 1915 to $49,500,000 in 1920. It is time that the United States, as one of the principal gold producing countries of the world, and as a creditor nation, should check the amount of gold diverted for industrial use and provide means to prevent a still further decline in its production of new gold.

The gold producing power of the nation is now seriously threatened, and the loss of large gold ore reserves through continued shutting down of the mines is imminent, unless immediate relief is provided. To maintain the gold producing power of the United States will be to safeguard the gold standard.

LAST YEAR AND THIS

NEITHER BOUNDLESS optimism nor bottomless pessimism is in order now, but if a choice between the two must be made the former would be preferable and more nearly justified. Although the mining industry has suffered from many causes and still labors under handicaps present and prospective, the recent past has been far from unprofitable and the immediate future appears not altogether uninviting.

The year 1920 brought riches untold to oil operators and 1921 gives every promise of sustained or increased production, heavy demand and satisfactory prices. Iron ore movements were greater in volume and value in 1920 than during the year preceding, and the national rail shortage and the housing problem give every reasonable indication of a great and profitable market for steel for many years to come. Coal production during the twelve-month period last past approached the record mark of all time and price recessions have yet a considerable distance to go before they will become discouraging.

In the West, where mining in general has suffered most, several states rounded out the old year with increased production. Hope for relief for gold mining is not without

justification. At this writing, mineral producers of the South are joining the forces of the West in the campaign for tariff protection, and it is not unreasonable to believe the new administration will hearken to the voice of the whole country in this matter. Railroads have given notice of an intention to shake off the expensive shackles fastened by war enactments, and when they have thus reduced operating expenses, even if not before, they must in the very nature of things reduce the rates which amount in many instances to more per ton than the cost of producing ore.

Sanity has returned to the world. Workingmen have begun accepting wage reductions with good grace, the backbone of the consumers' strike is broken, Congressmen and Senators are becoming convinced that oppressive taxation defeats its own ends. The danger of a financial panic has passed, prospects loom bright for unexampled business before the expiration of the current year.

It is not a time for inactivity. No "easy pickings" are in sight. Some branches of the mining industry have yet a very, very hard road to travel, and others have a deal of work to do before the going can be made easier. But miners are fighters. They may be knocked down, but they never lay down. To such men and to such an industry the outlook, taken by and large, is reassuring.

WHEN DOCTORS DISAGREE

THE STATEMENTS of an eminent economist submitted at the Congressional hearing against the passage of the McFadden Bill do not hang together. Professor E. W. Kemmerer of Princeton is unfortunate to the extent of being unable to agree even with himself.

At one point in the hearing Professor Kemmerer stated that the increased volume of gold production which the McFadden Bill might stimulate would amount to such a small percentage of the world's total supply that it would have practically no effect from the monetary standpoint. But at another point he asserted that the payment of a premium would so stimulate production that it would make gold cheaper and prices higher, and that this process would continue and repeat and multiply itself over and over again indefinitely. In fact, the Professor admitted that the more he contemplated the terrible effects of the payment of a premium to gold producers the more nonplussed he became, and he could only say that "You have what seems to me to be a vicious circle. I do not see where it is going to end."

The Professor's statements cannot be reconciled. The conflict between them is flagrant and fatal to his case. The effect of such self-contradiction in the testimony of an eminent economist will not be lost upon the logical, coolly-calculating minds of the members of the Ways and Means subcommittee.

THE GOMPERS REBELLION

INSURRECTION, without qualification, is what the threatened conduct of Samuel Gompers and the other two-hundred union leaders amounts to. "A flat refusal on the part of labor to recognize or abide by the terms of injunctions" means just this, nothing more and nothing less.

Democracy comes to full fruition in the courtroom. It is most perfectly exemplified in the respect and obedience accorded to court decrees. Our's is a constitutional government. Mr. Gompers and his colleagues have all the rights guaranteed by the constitution to all other citizens, but no more. One of these rights is the privilege of appealing to the courts, and another is the privilege of having the court's award enforced upon an unsuccessful adversary. Refusal to submit to the arbitrament of the courts is anarchy and organized resistance to their authority is rebellion. History affords more than one instance of the ability of the United States government to deal with insurrection.

But it is seriously to be doubted if Mr. Gompers and his two hundred other potential insurrectionists actually represent organized labor in this matter. After all, they may be only misrepresentatives. In a more pronounced emergency a few years ago the Administration capitulated to the demands of certain organized labor leaders and enacted the Adamson Law, but at the last election a very considerable proportion of those who benefited directly from this measure voted against the Administration which put it into effect. There have been observed other indications that organized labor has seen the futility of class antagonism, and certain it is that a majority of voters, which always includes many members of labor unions, is done with class rule. So in asserting that "this is the only immediate course through which labor can find relief and this course it purposes to pursue," Mr. Gompers is taking in a whole lot of territory, and, perhaps, too much.

At this writing, forty-eight hours after the issuance of the Gompers pronunciamento, there appears little occasion for alarm. But should the situation change, Mr. Gompers and his two-hundred friends will do the worrying.

COAL AND THE CALDER BILL

ANY business, under competitive conditions, with a productive capacity in excess of possible consumption needs no governmental control to insure low prices. If a line of business also requires continuous operation at highest capacity in order to meet competitive conditions, there is created a condition which instead of requiring government restriction actually requires government sympathy and aid in order to prevent the demoralization of the business by cut-throat competition.

When the war broke out, the bituminous coal industry as a whole was on the verge of bankruptcy. A few large companies with vision were increasing their bonded indebtedness, buying up the holdings of their bankrupt neighbors, and gradually, the process leading to a great trust in coal was in operation.

The Sherman Law, backed by the power of a great government, threatened every combination, either reasonable or unreasonable, by which economies might be effected and the dangers of bankruptcy avoided. Coal company after coal company went into bankruptcy, the larger combinations perhaps increasing their production, but the net result being that notwithstanding the immense number of mines opened as new ventures, there was a less number of mines in operation in 1915 than in 1910, and those remaining in operation were struggling with each other to secure possession of the larger markets at prices which gave no profit to the operator except to keep in existence while other competitors whould go into bankruptcy in the hope that at some future time a profit might be obtained.

With the opening of the war came a demand so great as to require a maximum production of coal, that maximum being greater than it was possible for the railroads to transport. Cost of coal production at the mine was doubled and trebled, by increasing wages, by inefficient workmen, and by the fact that wages were so high that many miners who did not need to work but three days a week to support their families deserted their posts for the remainder of the time. Notwithstanding these adverse conditions the bituminous coal industry supplied the nation with its extraordinary needs during the war.

When the war was closed there was an over-supply of coal in practically every part of the country and produc-

tion slackened because there was no future market in sight. When this surplus stock was partially exhausted coal strikes and railroad strikes, one after another, interfered with production while purchasers in various remote sections refused to buy coal when it was available and found themselves without it when coal could not be obtained. A run-away market was inevitable. Profiteering will reoccur under those conditions at every stage of future history, not only in coal but in every other commodity.

At the beginning of the war the bituminous coal industry was largely disorganized. Under governmental direction and under call of a government official, the coal operators of the country were brought together, by a request which amounted to a command, in a government building in Washington and practically required to organize to meet what was then considered a crisis. The individual coal operator *willy nilly* joined this movement, the National Coal Association was organized and began its work in close co-operation with the government. Its chief executive officer was soon called to the assistance of the Fuel Administration and rendered signal service to the United States Government throughout the war. This same organization, created at governmental command, following largely governmental direction, is now made the goat upon which is being fastened the sins of governmental interference in business affairs.

It has probably not occurred to those who are now fighting for governmental control of the coal business that this is but one of the various steps by which the constitutional liberties of the nation are being encroached upon. What has the coal industry done to justify this effort to restrict its operations and make greater the cost of coal production?

During its history the coal industry in the United States has furnished coal cheaper than it has been furnished in any other nation in the world. Upon the cheap power developed therefrom, more than upon any other factor, rests the wonderful industrial advancement of this nation. During the war period, nine-tenths of the coal production of this country was sold at a less price than fuel in like quantities was furnished anywhere else in the world. Governmental interference thought to be necessary as a war measure furnished the opportunity for a few scalpers and pirates to make an extortionate profit upon a small fraction of the total coal supply—and this is being made a pretext to justify congressional interference with the production of a vital necessity. It is furnishing a poor excuse for discrediting the leaders of a great industry.

The agitation can serve but two unworthy purposes—first, to gratify the muckrakers and, second, to furnish an excuse for another and further raid upon the constitutional liberties of the people.

PRESIDENT LORING URGES UNITED EFFORT BY OPERATORS

BENEFITS OF ORGANIZATION were pointed out by W. J. Loring, president of the American Mining Congress, in an interview given to the Sonoro correspondent of the Sacramento Union. Mr. Loring was quoted as emphazing the effects of the Division of Federal Taxation of the Mining Congress and as anticipating the accrual of decisive benefits from the McFadden Bill campaign.

"One of the greatest needs at the present time is the co-operative efforts of the entire gold mining industry," Mr. Loring is quoted as saying. "If all the mine operators would ally themselves with the American Mining Congress, these relief measures could be secured more easily. One feature of this organization that should appeal to all operators is the tax department."

PLANS FOR CORRELATING MINE STANDARDIZATION WORK

DEVELOPMENT of plans for standardizing mining equipment has progressed satisfactorily since a permanent organization of the General Correlating Committee was effected. Pursuant to the plan agreed upon in New York in January, the general standardization committees of the American Mining Congress are preparing drafts of their contemplated year's work for use of the Correlating Committee.

At the New York meeting, held at the offices of the American Engineering Standards Committee, 29 West Thirty-ninth Street, Colonel Warren R. Roberts, chairman of the Coal Division of the Standardization Committee, represented the American Mining Congress; Dr. O. P. Hood represented the United States Bureau of Mines; Howard N. Evanson represented the American Institute of Mining and Metallurgical Engineers; B. Britton Gottsberger represented the Mining and Metallurgical Society of America and F. P. Sinn represented the National Safety Council.

E. A. Holbrook of the Bureau of Mines was elected chairman, Colonel Warren R. Roberts vice-chairman, and P. G. Agnew, secretary, of the General Correlating Committee for Mining Standardization.

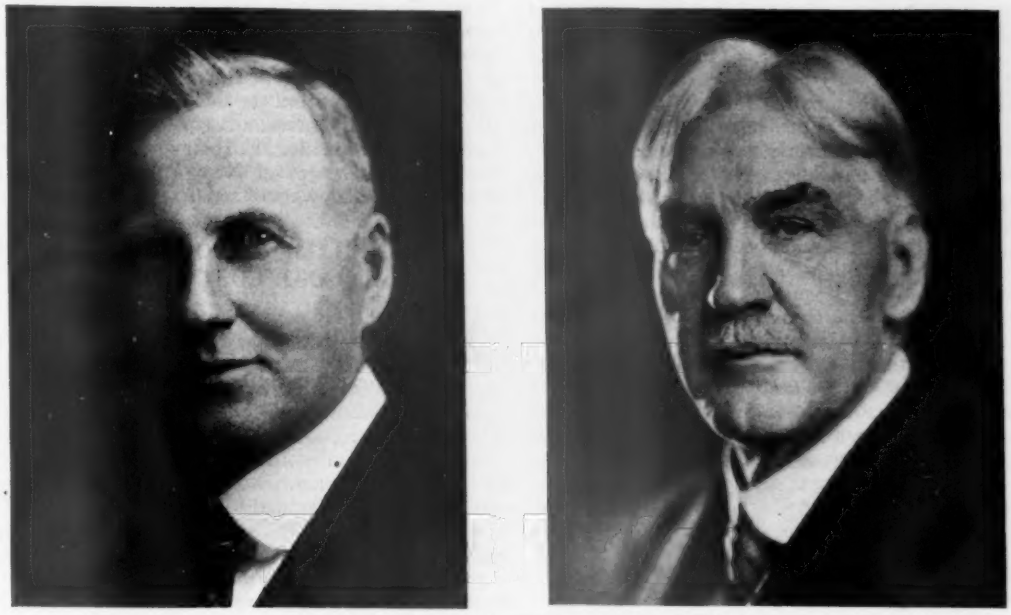
The committee is composed of two representatives of seven national societies and organizations which are interested in the standardization of mining equipment and methods. The object of the formation of the committee is to coordinate any work on standardization which any of these societies and organizations may be doing with the work which the American Mining Congress is now carrying out. In fact, this meeting was called because of the extensive work the American Mining Congress is doing, which has excited the interest of the industry generally.

The meeting was the third conference which this committee has held in the last few months and at this meeting a very definite program regarding the future work was outlined.

It was agreed that the plan now under way by the American Mining Congress for the publication of a separate standardization bulletin, carrying the report of the Standardization Division of the annual convention of the Mining Congress held in Denver last November, be sent to the entire industry and to all manufacturers interested in the work with a view to having the widest possible discussion of the reports and such constructive suggestions as any one may care to make.

When replies are received from the industry they will be sent to the chairmen of the sub-committees to whose work the suggestions may apply, for the consideration of those committees. After due consideration of the suggestions the sub-committees will make such revisions as meet general approval and these final revised reports will be submitted to the General Correlating Committee for final approval, after which they will be considered American standards and will be published in the semi-annual standardization bulletin issued by the American Mining Congress.

Coal Mine Fatalities—Reports from all states except Kentucky, tabulated by the Bureau of Mines, show 172 coal mine fatalities in November, 1920, as compared with 90 in 1919. The rate per million tons of coal mined was 2.94, as compared with 3.40 per million tons during the parallel month of the year before.



TWO NEW SENATORS FROM MINING STATES

Left, Senator R. H. Cameron of Arizona. Right, Senator J. W. Harreld of Oklahoma. Senator Cameron is interested in silver and copper mines and power projects. He was a delegate to Congress at the time Arizona was admitted to statehood. Senator Harreld is interested in oil.

COAL REGULATION FIGHT EXPECTED TO BE RENEWED IN NEXT CONGRESS

THE CALDER BILL will not be passed during the present session of Congress. It, or some other measure of a similar nature, will be introduced in the next Congress, probably early in April, and the drive to place the coal industry under strict government control is expected to result in a finish fight.

The Senate Committee on Manufactures has devoted several months to consideration of the coal industry and all of its various ramifications. It has listened to representatives of scores of organizations and government departments and a large number of individuals. Two other Senate committees during the present session have also taken up the coal question, but the House has not considered it at all. It is thought in many quarters that the Calder Bill will emerge from committee so amended as to be more objectionable than the original measure, but even if the Senate takes final action during this session it will be impracticable for the House to do so. And since all proposed bills un-enacted on March 4 will expire automatically, it cannot be predicted whether the battle in the next Congress will be waged over the Calder Bill, re-introduced, or some other and entirely new measure.

Into the Senate hearings on the Calder Bill have been injected discussions, reports and prophecies concerning nearly every business and industrial problem which the coal mining industry even remotely touches. Among the questions considered were car shortage, price fixing, hours of labor, participation of government officers in coal sales, exportations, combinations in restraint of trade and storage of fuel in summer by householders.

At one of the last hearings before the Senate Committee on Manufactures, Edgar Wallace of the American Federation of Labor, who admitted he had not been in the Kansas coal field since 1892, injected the situation there into consideration of the Calder measure. Mr. Wallace wanted to deny that Kansas coal workmen had absented themselves to any great extent, and to enter a vigorous objection to the passage of any legislation intended to prohibit strikes. In fact, he made the emphatic statement that miners would strike anyway, and if necessary would strike against the government.

"We object to legislation to prohibit strikes," Mr. Wallace said. "Such legislation would lead to outlaw strikes and strikes in defiance of the government. Labor's unrest, which has heretofore been directed against the employer, without any great injury to the country as a whole, would be directed and far more bitterly against the government if an attempt was made by the government to set prices or to formulate a tribunal that would act as a final arbiter of industrial questions. Collective bargaining must be safeguarded. We have been trying for thirty years to obviate strikes, but if we have not the power to strike as a last resort, all of our attempts at collective bargaining would fail." Mr. Wallace said that the last bituminous coal strike would have been avoided if the operators and miners had been permitted to continue their joint agreements.

Activities of the National Coal Association were investigated by the committee in December and again in February. The committee secured certain records in the association's office, and quite a controversy was waged as to whether these records were "seized" or turned over to the committee voluntarily by the association's officers. During the February hearings, Senator La Follette intimated that the association had tampered with its own records in order to hide the facts, and Senator Reed, of Missouri, claimed that the association should be held guiltless until guilt was proved. The Missouri senator

held that the association's records had actually been seized by the Calder Committee and that the seizure was illegal. Those parts of the committee's records which cover this phase of the hearing are both lengthy and interesting.

For a while early in February the investigators found themselves considering retail problems in the District of Columbia. J. C. Ritter, formerly a Washington retailer, told the committee he had been driven out of business by his competitors, who belonged to an association of dealers, because he undersold them. Much time was given to hearing Mr. Ritter and those whom he accused.

W. W. Griffith, who bought out Ritter, was called by the committee, but upon the advice of counsel he ceased giving testimony before the committee had secured from him all the information it desired. He was told by his attorneys that Assistant Attorney General Nebeker had taken up the District of Columbia coal situation and might possibly inaugurate prosecutions. Judge Nebeker said that, "During the war it was necessary that certain combinations be formed such as those organizations under the Fuel Administration. Some of these might have constituted a technical violation of the law, but what we are particularly interested in is the situation following the armistice. Not only in the coal trade but in other lines combinations were continued for selfish ends instead of for the public protection."

Upon another occasion Representative Huddleston of Alabama urged the committee to do something to bring about storing of coal during the summer months and the equalization of the supply of railroad cars. He stated that the whole "buy coal now" movement of 1919 was carried on only to bring people to buy coal at high prices. He favored government ownership of railroads and terminals as being necessarily involved in the question of coal supply.

The American Wholesale Coal Association has issued a digest, in which George H. Cushing, director, sums up the Calder Bill developments as follows: That while for five months in the summer of 1920 prices on an undetermined percentage of coal were high, they were due to a world-wide disturbance in business growing out of the war; that even with this disturbance high prices would not have prevailed had sufficient transportation facilities been available; and that regulation of coal in peace times as a punishment for indiscretions of coal men would be unjust. He argues that the Calder Bill abridges the right of private contract, deprives the merchant of his right to select his customers and name his price; and that it dispossesses the owner of the land of his property, all of which he classes as vicious.

OPERATORS ORGANIZE TIDEWATER COAL EXCHANGE

DR. HENRY MACE PAYNE, chairman of the Coal Export Committee of the American Mining Congress, has been made a member of the executive committee of the Tidewater Coal Exchange, organization of which was perfected at a meeting in Knoxville, Tennessee, during the first week in February, and headquarters of which will be at Charleston, S. C. Thirty companies, with an uncontracted output of 3,945,000 tons, became charter members of the exchange.

Officers elected, who with the others listed became members of the executive committee, are as follows: President, L. C. Gunter, Southern Appalachian Coal Association; secretary-treasurer, J. E. McCoy, Southern Appalachian Coal Association; John E. Patten, Chattanooga, representing N. C. & St. L. Railway operators; John L. Boyd, Knoxville, representing Jellico field; R. E. Howe, Middlesboro, representing Middlesboro field; E. C. Mahan, Knoxville, representing operators at large; Guy Darst, Knoxville, representing the Harlan and Virginia operators; G. W. Stephenson, Nashville, representing operators on the Tennessee Central Railroad and on the Q. & C. Railway south of Harriman; K. W. Dyas, Stearns, representing operators on the Q. & C. Railway north of Harriman; I. L. Graves, advisory representative Southern Railway at Knoxville; Dr. Henry Mace Payne (with F. C. Koenig as alternate) of New York, representing transshippers and Tidewater Coal Exchange, Inc.

TRADE COMMISSION MAKES FINAL COAL COST REPORT

A BULLETIN covering coal operations in the states of Iowa, Kansas, Arkansas, Oklahoma, Missouri, Colorado, Texas, New Mexico, Montana, Wyoming, Utah, Washington, and North Dakota was issued during the month by the Federal Trade Commission. This bulletin completed the series in which the Trade Commission handled the coal trade of the entire country. It covers three years. For 1918 it is based on reports of 394 operators who mined 61,000,000 tons from 628 mines, and for 1916 and 1917 it is based on reports of 27 operators who mined 4,600,000 tons yearly. For the production of 61,000,000 tons the commission says the average annual total f.o.b. mine cost ranged by districts from $1.08 to $4.45 and the average sales realization from $1.36 to $4.66. The labor cost in 1918 was from 39 to 53 per cent higher and the total f.o.b. mine cost in 1918 was from 42 to 48 per cent higher than in 1916. The sales realization in 1918 was from 46 to 69 per cent higher than in 1916.

NAVY CRITICIZED FOR FAILURE TO DEVELOP ALASKAN COAL

DURING A HEARING of the House Committee on Appropriations, Chairman Good criticized the Navy Department for failing to develop Alaskan coal resources, and also for declining to sell fuel to the coast guard and other government sections. He went so far as to intimate that the navy was "in league with interests boosting fuel prices."

Coast guard officials testified that although the navy had $1,000,000 available for use in developing Alaskan coal, it refused to do so, and that as a result the coast guard was compelled to pay $50 per ton for coal mined at Nome and St. Michaels. They also claimed that the coast guard, which formerly obtained fuel oil and coal from the navy, had lately been unable to do so on the ground, as the navy officials said, that supplies could not be spared.

Chairman Good expressed the opinion that the navy should have been mining coal in Alaska for two or three years and that he could not understand the navy's attitude.

January Anthracite Movements

SHIPMENTS of anthracite during the month of January, as calculated by the Anthracite Bureau of Information, amounted to 5,740,538 gross tons, a decrease of 695,782 tons as compared with December. Although there were only twenty-five working days in the month, the output was almost equal to that of November 1920, which amounted to 5,765,347 tons, and was greater than that of January 1920, of 5,713,319 tons.

Shipments of anthracite during the last month of 1920 amounted to 6,436,320 tons, an increase of 670,973 over November. The average daily shipments were 268,180 tons, a falling off from the November average of 274,540 tons.

ELLIS ISLAND ENGINEER WANTS TO QUIT USING COAL

SUBSTITUTION OF OIL burning equipment for coal burning equipment at Ellis Island at a cost of $100,000 is urged by Capt. A. B. Fry, engineer in charge of that immigration station, in a letter to Congress. Captain Fry said the use of oil would save $28,000 annually in the cost of labor, and that the heating plant could be made to furnish more satisfactory service all around. Chairman Good of the House Appropriations Committee, to whom Captain Fry's request was directed, opposed the change from coal to oil on the score of shortage of oil. Captain Fry insisted that while oil scarcity was a reality, there nevertheless were many fields, including newly discovered ones, which produced oil suitable for fuel purposes, although it could not be refined. He claimed also that big oil interests had informed him that the fuel oil market had already eased up.

GOVERNMENT USED INFERIOR COAL

THE ADMISSION that a poor quality of coal had been provided by the government fuel yards to the government departments at Washington was made to a congressional committee by G. S. Pope, in charge of the yards. Mr. Pope stated it had been found necessary to relax specification requirements in order to secure any coal at all. Mr. Pope had been questioned by members of the House Appropriations Committee who had received complaints as to the quality of coal distributed by the yards.

Although there were times when the coal supply in the government yards ran very low, Mr. Pope said that no difficulty existed any longer in securing bituminous, and that a supply sufficient to last eighteen days was on hand. He also said that coal which cost $6 a ton last year was now being purchased for $3.25 a ton, and that some of the mines which had furnished the yards poor coal were now closing down because they could not compete in the open market with mines which were selling good coal.

Lighthouses Stocked Up on Coal

ALL OF THE anthracite and half of the bituminous coal which will be required by the Lighthouse Service during the remainder of the fiscal year ending June 30, has been purchased. The service uses 60,000 tons of bituminous and 9,000 tons of anthracite annually. Costs for the current year amount to about $4.50 per ton more on anthracite and $3.50 more on bituminous than for last year. Prices average $9.56 for anthracite and $6.78 for bituminous, although during a period of severe shortage $15 was paid for bituminous and $19 for anthracite at Baltimore and Norfolk. The Lighthouse Service buys its coal at various places, generally at points where it is used. It formerly secured its supplies from the navy, but has been unable to do so for the last two years because the navy has had difficulty in meeting its own needs. The Lighthouse Service estimates that it will have to pay $14 for anthracite and $10 for bituminous next year.

Shipping Board Receives Coal Bids

TENDERS for furnishing bunker coal for merchant ships were received by the U. S. Shipping Board February 28, and awards will be announced early in March. The contracts will provide for coal for one year at the following places, in the amounts stated: Boston, 17,500 tons; New York, 150,000 tons; Philadelphia, 180,000 tons; Baltimore, 75,000 tons; Norfolk, 225,000 tons; Charleston, 36,000 tons; Savannah, 30,000 tons; Jacksonville, 18,000 tons—a total amount of 731,500 tons.

AMOUNTS OF FUEL CONSUMED BY UNITS OF AMERICAN NAVY

FUEL BIDS will be received by the navy March 8. Proposals have been asked for 2,230,850 tons of bituminous for ships and 329,920 tons of bituminous otfor her purposes, and 48,320 tons of anthracite for ship uses and other purposes.

Announcement was made from the Navy Department during February that the practice of commandeering had not been abandoned. In fact, it was intimated that the bids which will be opened on March 8 are not expected to result in the award of contracts for all of the navy's requirements because of the large amount of fuels sought and the high level of prices which still prevails.

The navy's fuel bill for the last six months of 1920 amounted to $18,267,412.

The amounts of coal and fuel oil consumed by individual ships are interesting. Estimates for next year, given by Admiral Peoples to a Congressional committee, were as follows (tons referring to coal and barrels to oil):

Six dreadnaughts, one year, 111,000 tons and 205,300 barrels; seventeen oil burning dreadnaughts, one year, 1,015,000 barrels; two dreadnaughts in reserve, 8,000 tons; two cruisers in commission one year, 87,000 tons; three for six months, 15,000 tons; one for one month, 5,000 tons; ninety-six destroyers, one year, 1,355,000 barrels; 202 destroyers in reserve one year, 655,000 barrels; 131 submarines, one year, 95,000 barrels; 8 in reserve one year, 2,000 barrels; four destroyers tender, one year, 30,200 tons; 500 barrels; two destroyers, one year, 95,000 barrels; one for 8 months, 40,000 barrels; two submarine tenders, one year, 50,000 barrels; three for one year, 20,000 tons, 12,000 barrels, one for one year, 7,000 barrels; two for one year, 12,000 tons; nine eagle boats, one year, 53,500 barrels; one fleet repair vessel, one year, 5,000 tons, 30,000 barrels; one for one year, 9,000 tons; one for one year, 50,000 barrels; two hospital ships, one year, 14,000 tons; one supply ship 55,000 barrels; three for one year, 18,400 tons; two target repair ships, one year, 5,000 tons; one for one year, 4,500 tons; aircraft tenders, one for one year, 600 tons and 15,000 barrels; aircraft carriers, one for one year, 26,000 barrels; mine layers, two for one year, 75,000 barrels; colliers, eight for one year, 86,300 tons; oil tankers, nine for one year, 455,900 barrels; one for one year, 12,000 tons; one for eight months, 18,000 barrels; transport cargo ship, eight for one year, 124,500 tons; ammunition ships, two for one year, 10,000 tons and 70,000 barrels; gunboats, fourteen for one year, 58,200 tons and 15,000 barrels; one for nine months, 2,000 tons and 10,000 barrels; survey ships, two for one year, 5,800 tons; fish ships, two for one year, 25,000 tons; station craft, eleven for one year, 38,000 tons; two for one year, 19,000 barrels; experimental ships in reserve, one for one year, 3,000 tons; eagle boats in reserve, 40 for one year, 60,000 barrels; mine sweeper and tugs, thirty-five for one year, 286,000 barrels; 18 for one year, 36,000 barrels; seagoing tugs, thirty for one year, 30,000 tons and 350,000 barrels; harbor tugs, sixty for one year, 20,000 barrels; miscellaneous ships, thirty-five for one year, 65,000 tons.

The estimates for next year provide for 96 destroyers in commission and 202 in reserve, and 131 submarines in commission. Representative Kelley said there would not be more than 75 or 80 submarines next year, as the engines for some had not been satisfactory.

GOLD LEGISLATION CAMPAIGN ADVANCES

FOUR DEVELOPMENTS stand out prominently in the hearings on the McFadden Bill:

1. The measure will not be enacted into law at this session of Congress.

2. It is constitutional.

3. Most serious consideration is being given by the House sub-committee to the beneficial effects the McFadden Bill might have on the maintenance of the gold standard. The sub-committee has accepted the position of the American Mining Congress, emphasized by the Secretary at this last hearing, that this is the great compelling argument in favor of the measure, and that benefits accruing to the gold mining industry will be incidental and of minor importance compared to the benefits to the country as a whole.

4. A luxury tax on gold articles, as large or larger than the ten dollars an ounce proposed in the McFadden Bill, will be urged by influential members of the next Congress, irrespective of whether the measure providing for payment of a premium to producers of new gold is adopted or defeated.

The last hearing was held by the House Ways and Means sub-committee on February 8 and at its conclusion Chairman Charles B. Timberlake announced the future course to be taken would be decided upon later. It is generally believed that a report from the sub-committee is the most which can be hoped for at this session.

Attorney General Palmer had already informed Chairman Fordney that he could not give an opinion upon the constitutionality of the measure, as such action would not only be without precedent but directly in violation of law. Upon hearing of this announcement Congressman McFadden submitted a memorandum from a brief by Judge William Howard Taft, filed while he was Solicitor General, and holding that the government under similar circumstances could constitutionally pay a bounty to sugar producers. Mr. McFadden inferred that the government manifestly could do the same for gold producers.

While witnesses for the Jewelers' Vigilance Committee were on the stand, Congressman Garner let it be known that he anticipated an effort to place a tax on gold used in the manufactures and the arts would be made during the tariff hearings, and added: "That ought to be done. I do not think it is an essential industry. I am willing to hear the arguments as to the advisability of this and I presume we will hear you gentlemen at that time."

This last hearing was held mainly for the purpose of giving the opposition to the McFadden Bill an opportunity to put in their final argument. The opposition witnesses were G. Niemeyer of 59 Cedar Street, New York, and Morris L. Ernst of the law firm of Greenbaum, Wolff & Ernst, New York, and Professor E. W. Kemmerer of the chair of economics of Princeton University, all representing the Jewelers' Vigilance Committee. Their testimony was replied to by Congressman McFadden, and H. N. Lawrie and Secretary J. F. Callbreath of the American Mining Congress.

An outstanding feature of the testimony given by the legal witnesses for the jewelers was that they made no argument against the collection of a tax on gold used in manufacturing and the arts, but confined their opposition to the payment of a premium to producers of new gold. Both attorneys admitted there could be no question about the constitutionality of the tax, but insisted the government had no right to collect the tax from the public generally and pay premiums to producers of gold. Congressman McFadden replied to this portion of the attack, including in his statement an excerpt from a brief prepared by Judge William Howard Taft while he was Solicitor General of the United States and submitted to the Supreme Court on October 24, 1891. Judge Taft said:

"Here was a case where citizens, by reason of heavy sugar duties which had existed for many years, had been induced to make large investments in the plant required for the production of sugars; and now it was proposed by Congress to remove the duties because the revenue which they produced was more than sufficient for the uses of the government. The removal of duties would absolutely destroy fifty or sixty million dollars' worth of property invested in this industry and protected by the duties. To enable persons whose property would be thus injuriously affected to prepare for the change, the government was under a moral obligation to reimburse them for their loss or to permit them by a bounty to continue the business until such time as the business might be self-sustaining."

The application of Judge Taft's point was made by Congressman McFadden as follows: "Arbitrarily fixing the price of gold, the government has greatly penalized the producer of gold during the past five years by so greatly depreciating the purchasing power of the dollar, whereas, on the other hand, the same law is accountable in effect for subsidizing the jewelers and other consumers of gold by supplying them with gold at the pre-war price. In this respect the government has created a moral obligation which must be taken into account." If it would have been constitutional then to pay a bounty to sugar producers, it would be constitutional now to pay a premium to gold producers.

Professor Kemmerer testified from the standpoint of the professional economist, making the familiar argument that increased production of gold had been the cause for high prices a few years ago. He was forced to admit, however, that the increase in the circulation of substitute paper currency had been largely responsible for price increases of the last four or five years. Professor Kemmerer also made the statement that gold was as free to respond to the law of supply and demand as any other commodity, although the response was in the nature of variations in the cost of production and not in the price of the metal itself. The jewelers introduced a memorandum of an opinion by another college economist, Professor Edwin R. A. Seligman of Columbia, to the effect that gold differed from other commodities in that in so far as it served as a standard of value and a medium of exchange it is always purchased by the mints at a price which is definitely fixed in the United States and is unaffected by variations in demand or supply.

Professor Kemmerer also insisted that jewelers and other manufacturers of gold articles were not receiving a subsidy, although they still purchase their gold raw material at the pre-war price while the average price of all other raw commodities is over eighty per cent greater than in 1913.

Advocates of the McFadden Bill were also informed by Professor Kemmerer that the payment of a premium to producers of new gold would increase the cost of production and actually make gold mining less profitable than it is today. His reasons were that "If the bounty stimulated gold production it would tend to make gold cheaper, for it either results in increased supplies thrown on the market to the extent that it makes gold cheaper while it

makes prices higher; therefore the more you stimulate production by a bounty the cheaper you make gold and the higher you make other prices of supplies, including cyanides and explosives and all other items that go into the mining of gold. That would mean higher prices, higher costs, and the higher the costs the more bounty needed to meet these higher costs. You have what seems to be a vicious circle. I do not see where it is going to end."

During the course of his examination Professor Kemmerer stated his belief that prices of commodities in general never would descend all the way to the pre-war level. He thought they might eventually become stabilized at about twenty-five per cent above the pre-war level.

Congressman McFadden in cross-questioning Professor Kemmerer quoted from a recently published statement of the economist in which he said: "The answer to the question of how far deflation should go is largely a question of the re-establishment of adequate gold reserves." Congressman McFadden then asked this question: "If, as you say, there is a question of the re-establishment of the gold reserves, would it not be better to increase production?" Professor Kemmerer replied that there was so much gold in the world that the amount of increased production which the McFadden Bill would stimulate would be infinitesimal, and that the only proper method of accomplishing currency deflation would be "through the restriction of this highly inflated paper money and have the currency based on the gold reserve of the world."

Mr. Lawrie answered this statement by pointing out that since the percentage of gold is so small as compared to the volume of credit and currency the effect of larger production would be increased rather than diminished, and that deflation could be accomplished by increasing the gold reserve as well as by decreasing the volume of the note circulation.

The chairman announced the committee had received a letter from Secretary of the Treasury Houston saying the Treasury had nothing further to offer.

Filing of additional briefs by the advocates or opponents of the McFadden Bill will be permitted.

NATION'S FINANCIAL SECURITY DEPENDS ON GOLD BILL

THE FACT that the financial security of the United States, rather than the prosperity of the gold miner, depends upon the passage of the McFadden Bill, was brought to the attention of the sub-committee of the House Committee on Ways and Means by Secretary J. F. Callbreath, of the American Mining Congress, at the close of the February 8 hearing. Mr. Callbreath also took occasion to correct the frequently-repeated statement that the American Bankers' Association had formally recorded its opposition to the bill.

Mr. Callbreath's statement follows:

"One question propounded by Mr. Garner should be given consideration; that is, whether this proposed bill is designed especially for the benefit of the miners. Perhaps I as nearly represent the mining industry as any one else, through my connection with it as Secretary of the American Mining Congress. If I were sitting in your place I would not consider any legislation specifically for the benefit of the gold miner. I do not think the gold miner is entitled to specific relief by the government any more than the people of any other specific industry, except as the business of gold mining becomes necessary to the nation's prosperity. The question before you is whether the production of gold is so necessary to the nation's industrial prosperity as to justify your extending government aid, not for the benefit of the gold miner, but for the benefit of the nation. We have in this country a billion dollars in gold in excess of our share of the world's supply and we can expect that this excess will drift back to those countries from which it came during the war. Since that time the world's gold supply has not been greatly increased.

"Prof. Kemmerer has told us that the total monetary supply of gold in the United States approximates $2,800,000,000 and that of this amount approximately $1,100,000,000 is likely to flow to other countries as times become more normal.

"We are also advised that the credit money based upon our present increased gold supply is several times larger than it was in the pre-war period.

"What is going to happen to credit in this country if we lose the $1,100,000,000 of gold and, practically, if, while this gold is being withdrawn by foreign countries, there is no supply large, or small, flowing into the upper end of the reservoir from which we are drawing at the bottom?

"It is of vast importance that we maintain the public's confidence in the money upon which business transactions of a nation are based.

"The withdrawal of 11/28ths of our gold reserves without even the normal production to refill the reservoir may lead the public to the conclusion that we will soon be in the same condition as European countries which now find themselves with a depreciated currency because the gold reserve is inadequate to give it support.

"The currency of Germany is practically worthless because it lacks gold. Italy with a little more gold has currency of more value. France with more gold than Italy has a currency not so much depreciated. England has more gold than any of these countries, but not enough to keep her currency at par. The United States is the one of the few great commercial nations which maintains its currency at par.

"The question before you, gentlemen of the Committee, is one of great importance and one which should be settled without reference to the interest of any branch of industry.

"You are not here to legislate for the benefit of the gold miner unless the gold miner's production is found to be so essential to the nation as to require his operations for the benefit of the whole. Unless the nation needs the gold miner, the gold miner should not have your support.

"Our money is now at par because we have more than our share of the world's gold supply. Unless our gold mines are kept in operation the day will come when we will be without the proper support and it will be difficult, if not impossible, to maintain our credit.

"If our gold mines are permitted to go out of operation, it will take many years, if it ever will be possible, to re-open them and it is necessary now if we need the gold to keep these mines in operation because production of gold cannot immediately respond to an increased price.

"This is well illustrated in the field of silver production. For the last two years under the Pittman Act silver has brought a relatively higher price than ever before in this country, and yet the production of silver fell off last year.

"A gold mine closed, dismantled and the workings filled with water is not likely to be opened up again. I once operated a mine which produced lead, silver and gold, but which has been closed for some years. It would be practically impossible to reopen it because of the danger of taking any man inside its workings. It would be inviting him to commit suicide.

"I feel, gentlemen, that you should consider this question of the country's necessity to keep up its gold supply. Prof. Kemmerer has pointed out, but I do not think he is quite consistent, that if we stimulate gold production that this will further increase prices so that an increased gold bonus will be necessary to maintain production, but a few moments later he stated that any possible production was so small a proportion of the world's gold supply that it would not be noticed. I have in mind that the gold supply of the world ought to be made to increase as nearly as possible in proportion to the increasing business transactions of the world.

"Gold today performs a larger service than it did before the war, because of its more rapid movement and because of the fact that gold is gathered into Federal Reserve banks of the country where it may safely justify a large credit basis.

"Even with these advantages, I do not believe it possible to maintain the gold standard if we stop production, because the total world

production in normal times is only approximately $400,000,000 per year and it would take twenty years to produce the amount which is now in the monetary systems of the world.

"Reference has been made to the adverse report of the Gold Committee of the American Bankers' Association. The fact is that two national conventions of the American Bankers' Association passed resolutions asking aid for the gold industry. Later on its Legislative Committee, consisting of more than one hundred members, made a report favorable to the McFadden Bill.

"The Trust companies section of this Legislative Committee voted unanimously in favor of the bill. Thereafter a subcommittee, composed of three men, made an adverse report. Three men reported adversely against a report of a committee of over one hundred members and in opposition to the resolution passed at two separate annual conventions of the American Bankers' Association. This adverse report was not adopted by the Association, but was referred to another committee which now has the matter under consideration. I think we have a right to say that this Association has not declared itself opposed to the McFadden Bill."

WELL SAID, MR. LUDLOW

CONGRATULATIONS are due to the American Institute of Mining Engineers for displaying great wisdom in the selection of a new leader, and to President Edwin Ludlow for calling upon the membership in his inaugural address to assume their full share of responsibility in solving the national problems of reconstruction.

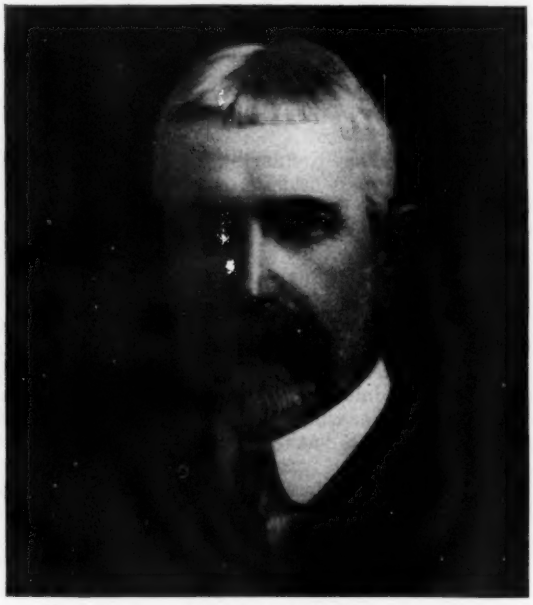
The greatest problem, as President Ludlow aptly puts it, consists in so adjusting wages and working conditions as to make labor efficient and bring the country back to a normal production basis without going through a period of strikes and disorganization. Ever since organized labor by threat of physical violence compelled the passage of the Adamson Law—in itself the most shameless and undemocratic measure ever perpetrated upon the American people and in its effects the instigator of a spirit of lawlessness and bolshevism—it has been inevitable that there should come a time of reckoning. That time has arrived. It is here, now. The manner in which the reckoning is consummated rests largely with Congress, and, as President Ludlow again says: "There has never been a time in all our history when sane, conservative influences were more needed than at the present to advise the legislative branch of the government."

In meeting great emergencies during the war Americans grew accustomed to the use of a permissible form of overstatement. "Food will win the war," Mr. Hoover said. "Thrift will win the war," said Mr. McAdoo, and Mr. Schwab was equally positive that ships would win the war. Neither food nor ships nor money alone won the war, but the performance of obligations resting personally upon every man, woman and child did win the war.

Facing the problems of post-war reconstruction in the same patriotic mood, President Ludlow tells the engineers that "the brunt of this work falls on you engineers," and "the whole profession, as well as the business men of the entire country, depend on you to solve it." And in the sense that Mr. Hoover and Mr. McAdoo and Mr. Schwab and all the other real war-work leaders were right, President Ludlow undoubtedly is right. The American Mining Congress, which for a decade had been in Washington co-operating with Congress in constructive work and passed with it through the natural period of transition into the more strenuous era of reconstruction, is in a position to appreciate the value of the influence which the engineers can exercise, and is glad their president tells them "The brunt of this work falls on you" instead of saying "Let George do it."

Congress is responsive and glad to be advised. The American Mining Congress, representing an industry which is prosperous only when the country is prosperous, and which desires that every safe and conservative element of the population unite in the effort to make the country prosperous once more, extends its congratulations to President Ludlow and all the members of the American Institute of Mining Engineers.

Mr. Ludlow was installed as president at the 123rd meeting of the association, held in New York February 14-17. The sessions were largely attended and the discussions covered mining and milling, coal, non-ferrous metallurgy, iron and steel, petroleum and gas, non-metals, metals, industrial relations and treatments of steel. The banquet at which the new president was installed was held at the Waldorf-Astoria, and the extensive entertainment program ran throughout the entire four days. E. P. Mathewson was chairman of the general committee on arrangements.



EDWIN LUDLOW

Recently Inaugurated President of the American Institute of Mining Engineers

Operators Have Half Billion Dollars In National Banks

COMPTROLLER of the Currency Williams told a senate investigating committee during the middle of February that loans and discounts to manufacturing corporations amounted to $2,862,000,000, or 21 per cent of all bank loans. Coal corporations and firms had $156,000,000 on deposit in the various national banks, miners of iron and manufacturers of steel and iron had $172,000,000 on deposit, and oil producers $200,000,000.

CHICAGO THE NEXT CONVENTION CITY

OCTOBER 17—CHICAGO." This is the notation which should appear upon the date book of every member of the American Mining Congress and, in fact, of every mining man in America, including Canada and Mexico.

Accepting the invitation extended to the Denver convention by the Chicago Association of Commerce and the enthusiastic group of Chicagoans who attended the Denver meeting, the officers of the Congress have closed all arrangements for a great meeting and a greater mining show to be held in the Windy City beginning on the date named and lasting one week. John T. Burns, assistant secretary of the Congress, who has been in charge of the conventions of the last two years, has just opened permanent convention headquarters in the Congress Hotel, Chicago, from which city the preliminary notices and invitations are going forward to manufacturers and mining people as well as to the various state administrations interested in mining.

Mr. Burns is making an extended western trip in connection with the plans for a national show of some magnitude and will attend the international meetings in Spokane and Portland and address several groups of operators now being organized for the purpose of arranging to finance state exhibits which will be a credit to the states represented.

The sessions of the Congress will be held in Chicago's great Coliseum, where President Harding was nominated last summer. Five conference rooms will be built to accommodate the continuous sessions of the various affiliated organizations. Morning conferences and social affairs have been scheduled for the Congress Hotel, which is but a ten-minute walk or five minute ride by car or taxi from the Coliseum.

The Illinois Committee, which has been organized by Hon. Francis S. Peabody, the general chairman, is composed of the following leaders in Illinois industrial affairs:

HON. FRANCIS S. PEABODY, *Chairman*, president Peabody Coal Co., Chicago.

JAMES H. CHANNON, *Chairman Exposition*, president J. H. Channon Manufacturing Co., Chicago.

JOHN T. BURNS, *Secretary*, assistant secretary American Mining Congress, Congress Hotel, Chicago.

H. H. MERRICK, *Treasurer*, president Great Lakes Trust Co., Chicago.

HARRY C. ADAMS, president Peerless Coal Co., Chicago.

D W. BUCHANAN, president Old Ben Coal Corporation, Chicago.

E. J. BUFFINGTON, president Illinois Steel Co., Chicago.

F. K. COPELAND, president Sullivan Machinery Co., Chicago.

W. L. HODGKINS, vice-president Brownell Improvement Co., Chicago.

DR. F. C. HONNOLD, secretary Illinois Coal Operators' Asso-c ation, Chicago.

D. F. KELLY, general manager Mandel Brothers, Chicago.

CHARLES M. MODERWELL, general manager O'Gara Coal Co., Chicago.

A. J. MOORESHEAD, Madison Coal Corporation, Chicago.

ALBERT J. NASON, president Nason Coal Co., Chicago.

CHARLES PIEZ, president Link Belt Machinery Co., Chicago.

COLONEL WARREN R. ROBERTS, president Roberts & Schaefer Eng. Co., Chicago.

DON SEBASTIAN, president Bickett Coal and Coke Co., Chicago.

E. C. SEARLES, president Crerar, Clinch & Co., Chicago.

H. H. TAYLOR, president Taylor Coal Co., Chicago.

CHARLES WHEELER, Pickands, Brown & Co., Chicago.

James H. Channon, the chairman of the Exposition Committee, is one of the active spirits in the building of Chicago's industrial life and it is a guarantee of success to say that Mr. Channon is personally devoting several hours of his time daily to the preliminary work in connection with the arrangements for what is in reality the first serious effort to develop a national exposition of mines and mining equipment.

Mr. Burns spent last week in Washington in consultation with officials of the British, Mexican and American governments regarding official representation in the Chicago convention and exposition. Assurances have been given that Mexico will be well represented by an exhibit of petroleum, minerals and coal of importance to Americans from the standpoint of investment and operation. An invitation is going forward to the Canadian Minister of Mines and while in the West Mr. Burns will interest the Ministers of Mines of the various western provinces.

There will be exhibits from the Bureau of Standards, the Good Roads Bureau of the Department of Agriculture, the Bureau of Mines, Geological Survey, the Public Health Service and the Land Department, all of the exhibits being selected with regard to their value educationally as showing the development or possible development of America's mineral resources.

A committee of manufacturers will be in charge of the manufacturers section and the various mining and technical schools are being invited to take charge of the public division which will include the various state and county exhibits and educational displays.

For the first time, the value of good roads in the oil and mining fields will be shown, and the transportation section will include electric and gasoline tractors, trucks and trail equipment for both metal and coal sections. The American Association of Motor Truck Manufacturers will co-operate in making this section of the exhibit successful.

From this time forward high speed will be maintained in carrying forward the propaganda in connection with the Chicago meeting. The Illinois Manufacturers Association, the Chicago Association of Commerce and the State of Illinois have joined in the issuance of the invitations. The Committee on Arrangements includes representatives of the several branches of mining and allied interests. It is likely that when the Coliseum opens on the morning of October 17 next, the old conventioners who have attended the sessions of the Mining Congress for years will find many surprises in store for them, showing that the entire industrial machinery of the Middle West has combined to indicate its belief that Chicago is, as it professes to be, a great mining camp only awaiting this opportunity to make good on its claims.

CONGRESS CUTS BUDGET ESTIMATES

THE SESSION of Congress which will expire on March 4 has broken all records for slicing departmental budget estimates. Reductions of $1,570,202,837 for the fiscal year 1922 have been made, and to this extent at least Congress has lived up to the announced policy of some of the leaders —to reduce the tax burden by lowering expenditures. While the appropriations measures have not all been passed, it is believed that such changes as may yet be made in them will have very little effect on savings already effected in committee.

LYON SEES INDEPENDENT U. S. CERAMIC INDUSTRY

CHINA, POTTERY AND FIRE-BRICK manufacturers need no longer depend upon importations of foreign clays. The ceramic station of the Bureau of Mines at Columbus, Ohio, has conducted investigations which Dorsey A. Lyon, superintendent of stations, announces indicate the existence in America of beds of clay which after further experimentation can be made in large measure to meet the needs of American manufacturers. Thus, the ceramic industry may provide another instance of benefit accruing to American industries out of the war.

Mr. Lyon even goes so far as to express the opinion that the world's supremacy in ceramic trade matters may come to America.

Graphite crucibles which are indispensable for melting certain alloys and special steels used in war materials were made in the United States before 1914 from Ceylon graphite bonded with German Klingenberg clay. It was thought that high class crucibles could not be manufactured from American clays and graphites alone. The beginning of the war, which shut off exports from Klingenberg, found large stocks of Klingenberg clay in the hands of American crucible workers, but when these stocks were utilized it was necessary for them to begin the making of experiments. At first the use of new clays resulted in shortening the life of graphite crucibles from fifteen to sixty per cent. It was then that the Bureau of Mines took up the work of investigation at Columbus.

Tests were made upon several clays out of which twenty were selected. Of these twenty, eighteen were American, one English and one the German Klingenberg clay. After the laboratory tests were made, the results were applied in actual factory practice. Fifteen crucibles were made of each of the twenty clays, with the use of a standard graphite, in the regular manner at a Pennsylvania manufacturing plant. Ten of the crucibles of each clay were tested at a Detroit lubricating plant and five at a Lockport, N. Y., foundry. These tests showed that two American clays in brass melting crucibles tested higher than the Klingenberg clay and eight higher than the English clay. Tests on steel melting crucibles showed that thirteen American clays gave better service than Klingenberg and five better than the English.

At the present time 120 crucibles are being made and used at the Bureau of Mines stations to test the comparative properties of foreign and domestic graphites, samples of which have been procured from Alabama, Texas, Montana, New York, Ceylon, Madagascar and Canada.

Mr. Lyon concludes his report with the statement that no Klingenberg clay is used in America now, and that American manufacturers have begun to advertise that their crucibles are made out of American bond clays and are therefore superior.

One hundred clay samples have been tested at the Columbus laboratory, and pottery made from some of them appears to be the equal of that manufactured from imported clays. At the present time about fifty-six per cent of the white clay known as kaolin or china clay, used in making the better grades of pottery, is imported from England. At various times in the past English potters have attempted to have a ban placed upon the exportation from England of china clays, and it is considered probable that on account of this ban or for other reasons Americans will very soon be compelled to depend upon American clay. One single state, Ohio, would suffer more than all the others if this should occur before a satisfactory method of using American clays is evolved, since that state turns out fifty-two per cent of all domestic pottery. However, the United States has more white clays than any other country, and the Bureau of Mines will continue investigating their properties and studying methods of blending and refining, with the idea of assisting American manufacturers in becoming entirely independent of all foreign materials.

An agreement has been made between the Bureau of Mines and the Geological Survey of Ohio for investigating the fire-clays of that state. The Columbus station has begun investigating the refractory resources of the various states, and the work will probably continue for several years. During the war, fire-brick manufacturers were unable to supply the demand for brick used for furnace linings. The Columbus station is giving particular attention to the use of dolomite for this purpose. Two methods of burning dolomite are being tried.

MINERAL LAND WITHDRAWALS AND RESTORATIONS FOR YEAR

FROM DECEMBER 1, 1919, to November 30, 1920, 2,797 acres of coal land were withdrawn and 1,500 acres restored to entry. The total withdrawn acreage on the latter date was 40,142,725 acres.

There were no withdrawals or restorations of mineral, naval oil shale, oil shale, petroleum or potash lands during the period and the number of acres of outstanding withdrawals were: Mineral, 8,507; naval oil shale, 128,144; oil shale, 123; petroleum, 6,751,476; potash, 130,100. Fourteen acres of phosphate land were restored to entry, leaving 2,724,380 outstanding withdrawals. For power sites 48,134 acres were withdrawn, 2,210 restored, leaving 2,586,891 withdrawals outstanding. There were 120 acres outstanding under withdrawals as well drilling reserves. For all lands 153,290 acres were withdrawn; 757,290 acres were restored, leaving outstanding withdrawals of 58,082,552 acres.

Withdrawals of coal, mineral, and oil lands, outstanding, by states, follow: Arizona—coal, 141,954 acres; minerals, 8,507, petroleum, 230,400. California—coal, 16,643; petroleum, 1,257,229; potash, 90,678. Colorado—coal, 4,493; naval oil shale, 41,560; petroleum, 222,977. Florida—coal, phosphate, 119,723. Idaho—coal, 4,761; phosphate, 1,015,717. Louisiana—petroleum, 467,030. Montana—coal, 10,612,313; petroleum, 1,345,151; phosphate, 287,883. Nevada—coal, 83,833; oil shale, 123; potash, 39,422. New Mexico—coal, 5,585,208. North Dakota—coal, 10,624,561; petroleum, 88,894; ore-coal, 4,361. Utah—coal, 5,313,935; naval oil shale, 86,584; petroleum, 1,962,768; phosphate, 302,465. Washington—coal, 823,234. Wyoming—coal, 2,437,523; petroleum, 1,181,027; phosphate, 998,592.

Chromite In 1918 and 1919

CHROMITE SALES in 1918 aggregated 82,430 long tons, and 42,687 long tons were left unsold in the miners' hands, according to Geological Survey figures. Shipments of domestic chromite in 1919 amounted to 5,079 long tons valued at $129,302 or an average of $25.46 a ton. This was a decrease of 94 per cent in quantity and nearly 97 per cent in value over shipments of 1918.

Imports of chromite in 1918 aggregated 100,142 long tons and in 1919 to 61,404 long tons, the decline being nearly 39 per cent following cessation of the war demand. Cuba is the principal source of American importations. There were thirty-nine shippers in 1919—one in Wyoming, two in Maryland, three in Oregon and thirty-three in California.

A CLOSE-UP OF THE MEN WHO HANDLE YOUR FEDERAL TAX RETURNS

IS THE REVENUE DEPARTMENT HUMAN? Is it efficient? Are the tax returns of metal, oil, coal and timber operators handled by men who understand the peculiar, vexing problems of the metal, oil, coal and timber business?

It is rather customary to believe that all government departments are manned either by incompetent political appointees or heartless efficiency experts, that they are impersonal affairs, unapproachable and unsympathetic. Heads of departments are generally depicted as vain and pompous persons sitting at mahogany desks at the ends of long corridors lined with sentinels difficult to pass, and their chief administrative assistants as persons who could do something else as well, or as poorly, as what they are doing. It may give considerable comfort to the tax-payers to know that this is not a true picture, in so far as he and his business are concerned.

C. F. POWELL
Acting Chief of the Sub-Division of National Resources, Income Tax Unit

The Sub-division of Natural Resources, Bureau of Internal Revenue, was organized in the fall of 1918. R. C. Allen, who, during the war was a member of the Tax Advisory Board, and who, with A. P. Ramstedt of Wallace, Idaho, was a representative of the mining industry on that board, early foresaw the intricate difficulties attending the determination of taxes on incomes derived not only from mining but from all forms of wasting assets, including timber, oil and gas. The organization of a Division of Natural Resources, manned by competent engineers and accountants familiar with the wasting-asset industries, was early in 1918 considered by the Tax Advisory Board and Commissioner Roper. Mr. Allen was requested, on the basis of a memorandum submitted by him to the commissioner, with the approval of the board, to lay down a plan for the creation of a Division of Natural Resources in the Bureau of Internal Revenue. This was in September, 1918, or thereabouts. The memorandum devised by Mr. Allen was approved by Commissioner Roper, and at his request Mr. Allen became the first head of the division, at the same time acting as a member of the board. Dr. Ralph Arnold of Los Angeles, California, also a member of the board, assumed charge of the Oil Section and on the retirement of Mr. Allen in March, 1919, became the head of the division. Mr. Arnold was succeeded by Mr. J. L. Darnell, who, up to that time, had been Mr. Arnold's assistant, and had participated in the investigations under Dr. Arnold leading up to the publication of the Oil and Gas Manual. Mr. Darnell was succeeded by J. C. Dick, mining engineer of Salt Lake City. Mr. Allen subsequently became Vice President of the Lake Superior Iron Ore Association and a member of the Tax Committee of the American Mining Congress.

Following the armistice and the return to private practice of the engineers who patriotically served during the war period the American Mining Congress prevailed upon Commissioner Roper to continue the Natural Resources Division, assisting in the difficult task of obtaining men qualified to serve. J. C. Dick remained as chief of the division at personal sacrifice until recently, when succeeded by C. F. Powell, of Oklahoma City, Oklahoma, the latter formerly chief of the Oil Section.

The five departments of the subdivision are the Metals, Oil, Coal, Timber and Audit sections, which are introduced in that order.

The Chief of the Metals Section is Major Orr Ross Hamilton, mining engineer, graduated from the Michigan College of Mines in 1906. During the six years following his graduation Major Hamilton worked actively at his profession in the copper and iron mines of South America, Cuba and Lake Superior region. From January 1, 1913, to May 1, 1917, he was state mining engineer with the Michigan Geological Survey. His work in this position embraced the re-appraisal of all the mines of Michigan every year, under the direction of R. C. Allen, state appraiser, whose assistant he was. From May, 1917, to June 20, 1919, he served in the Engineering Corps of the army. He was captain of Company B, 28th Engineers, and later commanding officer of the first battalion. On July 1, 1919, he resumed his work with the Michigan Geological Survey and on January 1, 1920, accepted a position as valuation engineer with the Subdivision of Natural Resources, Washington. Because of his extensive experience only thirty days elapsed before he was made chief of the section, which position he now fills.

Assisting Mr. Hamilton are thirteen graduate mining engineers, each of whom had had actual experience in various parts of the country before he passed the rigid examination for his present position. Not one of them was a political appointee. The list includes Frederick B. Hyder, of California; John A. Grimes, Minneapolis; William H. Kobbe, Pasadena, Cal.; Albert W. Gaumer, Pennsylvania; William H. Harrison, Palmyra, Tenn.; Frank T. Eddingfield, Washington, D. C.; Frank F. Donahoe, Butte, Mont.; Alexander R. Shepherd, East Ely, Nevada; William H.

MAJOR ORR ROSS HAMILTON
Chief of the Metals Section

CAPTAIN GODFREY M. S. TAIT
Chief of the Coal Section

HEADS OF DEPARTMENTS, SUB-DIVISION OF NATURAL RESOURSES

Wagner, Melford, Del.; John Seward, Nutley, N. J.; Sam P. Hatchett, Larnesa, Tex.; William H. Craigue, Washington, D. C., and Robert Davis, Butte.

Tax returns for lead and zinc mines are referred by Mr. Hamilton to Mr. Hyder, who has specialized in those metals and is in turn assisted by other engineers who are also familiar with the problems of lead and zinc operators. Mr. Grimes is directly in charge of copper and complex ores and Mr. Gaumer of iron and manganese. All non-metal cases are referred to the sub-section headed by William H. Kobbe. Instances illustrating the engineers' familiarity with conditions in the various mining fields are of frequent occurrence. Mr. Hyder, for instance, has recently handled tax returns covering certain Alaskan properties which he once examined in his professional capacity. Mr. Hamilton quite frequently receives tax returns from men with whom, and with whose holdings, he has long been acquainted.

The head of the Oil Section is Norval White, of California. Mr. White had considerable experience as an independent, and later with the Shell Company, before he entered the service of the department. His section of the Natural Resources Sub-division includes seven departments, six for the geographical divisions of the country and one for handling gas and casinghead gasoline. Russell Bell is the valuation engineer in charge of the Eastern part of the country; Burr McWhirt, the Gulf Coast; S. M. Greenidge, North Texas; S. M. Gutberlet, Oklahoma and Kansas; R. W. Wardwell, California; D. D. Riddle, Rocky Mountains; L. F. Terry, gas and casinghead gasoline. Each of these men had long experience in the field before he came with the government, and, equally to the point, the experience in the case of each was in the exact field in which the tax returns now referred to them originate. Few items of expense or exhaustion which confront operators are unknown to them. They are familiar with the difficulties of every oil field in the United States and are prepared to give sympathetic consideration, and understanding consideration to any claim which may be made.

NORVAL WHITE
Mr. White, whose home is in California, is Chief of the Oil Valuation Section

Captain Godfrey M. S. Tait, chief of the Coal Section, is a man of extraordinary varied experience. He is a recognized authority on combustion engineering and the chemistry of fuels, both solid and liquid, and is the inventor of the Tait Gas-Producer and Tait Gas Analysis Apparatus, as well as many other practical devices used in connection with the combustion of fuels. Born in London, England, he came to America as a child. He has made an intensive study of the coal fields of the United States, being personally familiar with all the mines in Missouri, Kansas and Iowa, a large percentage of the mines in West Virginia and numerous individual mines in Pennsylvania, Kentucky and Illinois. He was formerly a member of the American Peat Society and is conversant with the peat bogs of Canada. He has inspected

W. R. KING

Before becoming Chief of the Audit Section, Mr. King gained International experience as an Expert Mining Accountant

the coal mines of Wales and the oil shale deposits of Scotland. He is the designer and producer of coal gas producer plants now in use in many states, Canada and Mexico.

In 1907, Captain Tait began practicing in Washington as a consulting engineer. He closed his business to enter the American army and was at once assigned to the Chemical Warfare Service and given personal charge of the overseas transportation of gas-loaded shells. After the armistice he was assigned to estimate the damage to the French coal fields, and prepared a complete report of the type and extent of damage, cost of repairs and years necessary to complete the reconstruction. He also reported on the effect of the curtailment of the coke supply upon the industries of France. Upon the completion of these reports he returned to the United States and resigned from the army, taking the post of valuation engineer in the Subdivision of Natural Resources. Assisting him as chief of the Coal Section are E. J. Mahan, Louis W. Atkinson, C. T. DuRell, F. L. Clemens, T. H. Barrett and E. F. Lines. Each of these men is familiar with conditions in one or more of the coal fields of the United States. The coal operator's income and excess profits tax returns are handled by men with a thorough knowledge of labor conditions, market conditions, valuations and selling prices both of coal and coal lands.

Carl M. Stevens, head of the Timber Section, comes from Portland, Maine, is a graduate of the Yale School of Forestry and has had about as varied experience in timber as may fall to the lot of one man. Entering the Forest Service upon his graduation in 1912, he spent two years cruising timber in North Idaho and Montana. Then for a year he was in the Missoula, Mont., office and in entire charge of the work of the district. From 1915 to 1919 he was in charge of a forest unit in the Cabinet National Park, Montana. He has had the entire responsibility of cutting and selling for the government from 250,000,000 to 500,000,000 feet of timber annually, as well as appraising and estimating a similar amount at the same time for cutting the next year. The Timber Section is divided into eight departments, each covering a particular geographical division of the country and having at its head a man who has spent his life in the region concerned. These geographical divisions, and the men at the head of them, are: No. 1, New England, New York and Pennsylvania, Dean W. Martin; No. 2, Appalachian Mountains and Mississippi Delta hardwood territory, R. C. Hall; No. 3, East Coast pine region—Virginia, the Carolinas, Georgia and Florida, M. L. Rue; No. 4, Southern pine territory, Alabama, Mississippi, Louisiana, Arkansas, Texas and Oklahoma, J. B. Woods; No. 5, Rocky Mountains and Lake States, E. B. Tanner; No. 6, California, vacant; No. 7, Northwest Coast, W. T. Andrews; No. 8, Inland Empire—North Idaho, Montana and a bit of Eastern Washington, vacant. S. L. Wolf, who ranks with these men, assists them all as occasion requires.

When an income tax return from a timber operator reaches the Timber Section, there is usually some one to be found in that section who is familiar with the tract involved. Knowledge like this, gained through experience in the field, is required before any man can secure a position as valuation engineer, and this fact explains why Territory No. 6 and Territory No. 8 at present have no permanent sub-chief. Each of them will have a sub-chief just as soon as Mr. Stevens can find some patriotic twenty-five thousand dollar man who will take on the job for about five thousand dollars.

Even in the Audit Section the policy of having for administrative heads men experienced in mining is followed out. W. R. King, the chief of this section, comes from East Tennessee, and brings with him an experience gained through many years of expert accounting in coal, non-metals, oil, gas and timber operations. As a general expert accountant he worked from Chicago to Cuba, from New York to Texas, always in some mining line. He has had actual experience in the coal fields of Pennsylvania and Tennessee, in the marble regions of Georgia, the phosphate regions of Florida and the timber operations of Virginia.

The chief of the entire Sub-division of Natural Re-

CARL M. STEVENS

The Chief of the Timber Section has managed Western forests, which are among the largest in the world

sources, C. F. Powell, was an oil operator in the fields of Kansas, Oklahoma and Texas, as well as a petroleum engineer by training and experience, even as late as two years ago, when he was induced to join the Income Tax Unit of the Internal Revenue Bureau as petroleum valuation engineer. Within four months after his arrival in Washington he was chosen as chief of the Petroleum Section, which position he held until the present month.

When a claim for deductions of any character reaches the Sub-division of Natural Resources, Mr. Powell refers it to the chief of the particulat section to which it belongs, that is, to the chief of the metals, oil, coal or timber section. There it is checked by one of the valuation engineers, and the chances are that the engineer to whom it is referred is a man who has worked in the identical field in which the property in question lies.

Arriving at the Audit Department, the deduction claim may again fall into the hands of old acquaintances. During the last month there have been received several claims on property on which the head of the audit section has worked. One mining operator two weeks ago came all the way from Alaska for a little friendly argument with one of Mr. King's assistants, only to find that the assistant had been associated a few years back with the Alaska property in question and was familiar with its every detail. The operator had no difficulty in obtaining sympathetic treatment. The troubles of the taxpayer are usually traceable to difficulty in compiling requisite data or to complications of the law and regulations, generally to the latter. Just as the courts of the land after these many years still have not settled all the fine points of law about which men disagree, and never will, so the Internal Revenue Bureau and the courts together have not fully and finally interpreted all the sections and phrases and clauses of the revenue laws. The problem of the taxpayer is serious and complex, and that is also true of the Revenue Bureau. The endeavor to play fair has led the laws and voluminous regulations into complications that are legion, but the trained specialists in the Sub-division of Natural Resources are proving of inestimable assistance in straightening out the tangle.

J. C. Dick Leaves Revenue Bureau

J. C. DICK has resigned the position of chief of the Sub-division of Natural Resources, Income Tax Unit, Internal Revenue Bureau, effective March 31, and will resume the practice of his profession as consulting mining engineer at Salt Lake City, his home. Mr. Dick has already relinquished the duties of office, and C. F. Powell of Oklahoma, formerl yhead of the Oil Section, has succeeded him. Mr. Dick accepted the office of chief of the Sub-division of Natural Resources at the request, and the very insistent request, of numerous mining operators, and his administration of affairs through a difficult period resulted in the straightening out of many problems vexing both to the department and the mine operators. He sought to resign several months ago, but was persuaded to continue in service a while longer. Mr. Dick always took a great interest in the general activities of the mining industry as expressed through the AMERICAN MINING CONGRESS, and was a leading speaker at the Denver convention.

Oil Saving Through Chartering of Ships

THE SUM OF $25,000 was saved on one cargo of fuel oil alone by the chartering of a ship to carry oil from Port Arthur to fueling stations in the north, according to a statement made by Admiral Peoples. The navy now has seven tankers under charter from the Shipping Board and wants to charter more. Admiral Peoples said in many instances it was economical to charter a vessel at one port in order to secure cheaper fuel at another port. He pointed out that while the cost of fuel oil at Hampton Roads was $3.25 per barrel, it was only $2.40 at Port Arthur.

HOPE REVIVED IN THE WEST, DR. HOLBROOK FINDS

DECIDEDLY MORE hope is in everybody's mind in the West than was observable three months ago," is the opinion expressed by Dr. E. A. Holbrook, assistant director of the United States Bureau of Mines, upon his return from a tour of western experiment stations. After attending the dedication of the new Reno station and the meeting of superintendents at Berkeley, Dr. Holbrook spent several weeks studying western conditions, and he was especially impressed by the spirit of optimism which prevailed generally, by the increasing importance of coal in the western mining world and by the effects of the leasing law of February 25, 1920.

"Three months ago the price of metal was down, but those of materials and labor were not," Dr. Holbrook said. "Now that labor and materials have begun to fall, there is more hope in everybody's mind. I got that impression from more than one source."

The increased and still increasing development of coal mining in the West is one of the outstanding features of the last few years, as Dr. Holbrook sees it. He recalled that when he toured the West fifteen years ago everybody was talking in terms of metals, and added, "but now they are more intent everywhere on coal than you would suspect was possible for the West." He pointed out that whereas ten years ago the traveler through Utah would never hear of coal, now there was considerable interest taken in coal mining. He ventured the suggestion that the number of men engaged in mining coal in Colorado, New Mexico, Montana, Washington and Nevada would compare favorably with the number engaged in metal mining.

"Idaho, Nevada, Arizona and Oregon were never considered as coal producing states, yet they have deposits everywhere in their territory and are interested in the development of their local coals," he said.

Plants which formerly used fuel oil, including those which dismantled costly coal-burning equipment, have in many instances returned to the use of coal, Dr. Holbrook said, having come to the conclusion that cheap fuel oil could not be depended upon as a certainty any longer. Wood also is not available as it once was.

Dr. Holbrook exhibited a copy of a letter in which the Secretary of the Treasury had called attention to increased development of coal mining under the leasing law. The Secretary pointed out that late in 1920, 254 coal prospecting applications covering 250,000 acres had been received, also thirty-nine applications for leasing permits covering 75,000 acres, and that on two leases 300 miners were at work. But on February 1 the number of applications for coal prospecting permits had grown to 460.

"As the population and industries of the Western States increase, applications for coal leases will become more and more numerous," Dr. Holbrook said. "With leases already granted, and those which shortly will be granted, the Western States will soon be mining coal to the value of several million dollars per annum, and the amount will increase very rapidly."

Dr. Holbrook found that the leasing act was a very popular measure in the West, and that the belief that it would have a very beneficial effect was general. The thought that it would result in the real development of those minerals on public lands prevailed everywhere.

TWENTY-FIVE MINERAL INDUSTRIES SEEK TARIFF PROTECTION

DEFERMENT of the introduction of a general tariff measure until next October, and re-enactment early in April of the Payne-Aldrich law to serve as a stop-gap against foreign dumpings during the intervening six months, appears to be the Congressional program.

Twenty-five mineral industries are asking for protection under the new tariff law. The House Ways and Means Committee conducted hearings from early in January until February 16, and five days later went into executive session to consider the evidence before it and draft a bill for presentation to the new Congress. It is considered certain that in the formulation of the new law the following principles will govern:

1. The new tariff bill will bring in $500,000,000 annually, or double the current receipts.

2. Ad valorem duties will be replaced by specific duties wherever possible. Specific duties are less subject to loose practice in the making of manifests and invoices. Tariff income under specific duties does not fluctuate so directly with changes in market values of importations as does tariff income under ad valorem duties.

3. Tariffs will be levied on values computed at the port of entry rather than at the point of sale, in order to make the basis of tariff assessments less dependent upon foreign exchange fluctuations.

Herbert Wilson Smith, chief of the Tariff Division of the American Mining Congress, appeared before the committee in advocacy of a tariff on all minerals now on the free list and upon frequent occasions in behalf of particular relief for specific industries. He was in attendance at every session during the hearings. Upon different occasions, operators from various parts of the country appeared before the committee in person. Upon one occasion, Congressman Rhodes of Missouri, chairman of the House Committee on Mines and Mining, spoke to the Ways and Means Committee in behalf of a tariff on barytes, and upon another occasion he and Congressman Welling of Utah attended the hearings on lead.

Among the mineral tariffs which the American Mining Congress is urging are the following:

ANTIMONY—10¢ per lb. on antimony content in ores, matte and antimonial lead.
ARSENIC—5¢ per lb.
ASBESTOS—No rate fixed.
BARYTES—¾¢ lb. on ores; 1¼¢ ground; 1½¢ sulphide; 2¢ carbonate; 2½¢ chloride and lithopone; 5¢ nitrate; 8¢ peroxide. All other barium compounds 25% ad valorem.
BAUXITE—No rate fixed.
CHROMITE—Ore, 60¢ per unit CRO^3 —refractories, 65¢ per unit CRO^3 —ferro chrome, 11½¢ per lb; chromium salts, 90¢ per unit.
GRAPHITE—1¢ per lb. on ore under 50% graphitic content; 2¢ per lb. on ore over 50% graphitic content; lump graphite 3¢ per lb.; flake graphite 6¢ per lb.; graphite products and manufactures 5¢ per lb. plus 20% ad valorem; all tariffs based on graphitic content.
FLINT—
MANGANESE—Ore 40¢ per unit; ferro manganese $1 per unit.
MAGNESITE—Ore ½¢ per lb.; ¾¢ per lb. calcined; ¾¢ per lb. brick plus 10%.
FELDSPAR—
MARBLE—Blocks and slabs over 2" thick, $1 per cubic foot; 1½", 12½¢ per superficial foot; 1", 10¢; less than 1", 8¢; finished 75% ad valorem.
MONAZITE SAND—15¢ per lb.
THORIUM—$3 per lb.
QUICKSILVER—50¢ per lb. of quicksilver.
MICA—Unmanufactured, 30¢ per lb. plus 60% ad valorem; cut 50¢ lb. 60% ad valorem; phonograph discs, 20¢ each, 60% ad valorem; refuse for grinding only, 1¢; ground flakes and dust, 2¢ per lb.
MOLYBDENUM—Ores and concentrates, 50¢ per lb. of MOS_2; $1 per lb. of molybdenum content in alloys.
PUMICE—
PYRITES—10¢ per unit of sulphur content.
POTASH—50¢ per unit K^2O.
TUNGSTEN—$10 per unit of tungstic trioxide in ores, concentrates, or compounds; $1 per lb. of tungsten content in ferro-tungsten.
TALC—Crude, ½¢ per lb.; prepared, 1¢ per lb.; cut, sawed or cubes, 2¢ per lb.; manufactures of, 50% ad valorem; decorated, 60% ad valorem.
LEAD—2¢ per lb. of lead content in ores, matte, etc., 2⅛ in dross bullion, pigs and manufactures.
WHITE CHINA CLAY (Kaolin)—2½ manufactured, $6 per ton.
ZINC—2¢ per lb. on ores bearing 25% or more of zinc content; under 25% metallic zinc, 1½¢ per lb. on metallic zinc content; blocks, pigs or slabs, zinc oxide, white zinc, pigment not containing lead, 2¾¢ per lb.; zinc in sheets, strips, plates, or coils, zinc dust, 3¾¢ per lb.

The representatives of the barytes and lithopone industry met in the offices of the American Mining Congress for a series of conferences prior to their hearings before the committee.

Following these conferences the following appeared before the committee: Maximilian Toch, of the Durex Chemical Company, New York; C. P. De Lore and A. E. Stocking, representing the Missouri Barytes Lithopone Association, St. Louis, and W. S. Peebles, representing the Commercial Miners of Barytes, Cartersville, Georgia.

H. P. Baker of the New Idria Quicksilver Company of Boston, Mass., and A. C. Rocca of California appeared for quicksilver producers.

The following appeared before the Ways and Means Committee in behalf of tariff for mineral industries under Schedule "C": Lead—Jerome J. Day, of the Couer d'Alene mine operators, Wallace, Idaho; Ernest Bamberger, of the Utah mine operators, Salt Lake City; Clinton H. Crane, of the St. Joseph Lead Co., New York; F. F. Evans, of the Eagle Pitcher Lead Co., New York; Ferro-alloys—Paul J. Kruesi, of the South Ferro Alloys Co., New York; A. C. Morrison, of the Electro-Metallurgical Co., New York, for ferro-chrome; N. P. Pettnot of the United States Ferro Alloys Co., New York, for ferro-silicon; Nelson Franklin, of Denver; for ferro-chrome and ferro-tungsten; J. C. Cutter of the Climax Molybdenum Co., New York City, and Clifton Taylor of the Molybdenum Corporation of America appeared for molybdenum ores, concentrates and ferro-molybdenum; Arthur V. Davis, of the Aluminum Co. of America, Pittsburgh, Pa., on behalf of aluminum.

The chief of the Tariff Division of the American Mining Congress presented to the Ways and Means Committee two charts on the subject of the effect of tariff on prices in mineral industries. The first showed the range of price and production of ten unprotected mineral industries over a period of twelve years showing a wide fluctuation in price and a high uniform cost to the ultimate consumer. The second was a composite chart of protected mineral industries over the same period of time, showing the much narrower range of price fluctuation and therefore a much lower cost of the finished material to the ultimate consumer. These charts are shown on page 101.

At the conclusion of the hearings on Schedule "C" Walter H. Dennison, of Batesville, Arkansas, appeared in behalf of domestic producers of manganese ore from the Batesville District.

Consideration of minerals under the free list was begun on February 11. Appearing before the Committee were

Wilbur La Roe, Jr., representing the United States Potash Producers Association, who made a most interesting presentation covering the need for protection of the potash industry in the United States and the adequacy of supplies to meet all normal domestic demands. He showed that the lakes of Nebraska alone contained a known supply sufficient to last one hundred years, and that the California supplies were incalculably large.

On the subject of graphite the Joseph Dixon Crucible Company was represented by Mr. McNaughton, who appeared in behalf of tariff on finished crucibles and finished graphite products and in opposition to tariff on graphite or plumbago. The committee has already heard graphite extensively and a large volume of graphite information is on record. George A. Sharpe of Alabama appeared on behalf of graphite producers of the United States, particularly speaking for the Alabama producers.

On Saturday, February 12, Frank W. Griffin appeared in behalf of tungsten producers urging the tariff already passed by the House and favorably reported by the Senate Finance Committee. Monday, February 14, different members of the firms manufacturing ferromanganese in Philadelphia appeared in behalf of a tariff on ferro-manganese, but asking that manganese ore remain on the free list. Charles W. Potts, of Deerwood, Minnesota, appeared in behalf of manganese production in Arkansas and manganiferous iron ore production in Minnesota. Mr. Potts said that the reserves of high grade ore in Arkansas were probably ten times what had been credited to the district by such government estimates as have been made so far and that the reserves of manganiferous iron ore were comparatively inexhaustible and only comparable in extent to the mammoth iron deposits of the same region.

A. J. Seligman, of the Butte and Superior Zinc Corporation, New York City, gave the committee an interesting account of the mammoth manganese operations in rhodochrosite. He said that his company had shipped already close to 200,000 tons of ore and that they could ship for many years at the rate of 1,000 tons a day. William J. Prowell, of Philadelphia, gave an account of his trips in the purchasing of mangagese which had taken him to every manganese district in the United States and expressed the opinion that our reserves offered extraordinary prospects for development into a permanent industry. He also spoke in behalf of a tariff on flurspar and stated that his company operated an enormous deposit in New Mexico from which shipments were being made to blast furnaces and which could continue to grow and develop under tariff protection.

A. G. Woodruff, of Garrisonville, Virginia, appeared in behalf of tariff on pyrites, and showed that the real competition to the pyrites industry was from the Reo Tinto and Huelva operations in Spain and not from domestic sulphur production, and that pyrites from Spain was imported into this country at the cost of ocean freight in order to furnish ships with a paying ballast on return from abroad.

The hearings before the Ways and Means Committee on administrative features occupied two days. There was discussed the particular effect of tariff on articles manufactured by child labor in view of our own child labor laws. It was suggested that an additional tariff be placed on articles so produced as such competitive conditions are not entirely covered by tariff. This would affect the production of all hand-sorted and hand-prepared minerals, such as tungsten, graphite, mica, etc.

Mr. Smith of the American Mining Congress appeared on February 16 to offer the suggestion that there be made available for compilation and distribution by the customs office to individual companies, trade organizations, trade journals and trade associations, such information as will give to the industries of this country the knowledge of whether or not its industry is being protected by the tariffs levied. It is especially desired that the customs office furnish daily a list of entries liquidated, giving in each instance the country of origin, the nature of the shipment and its classification for duty, omitting the name of the consignee and the consignor as a matter of fairness. It was also urged that the customs office be given an additional appropriation for this important work.

A. Cressy Morrison supported this position taken by the chief of the Mining Congress Tariff Division in an interesting statement in which he brought out the contrast between a protective tariff and a tariff for revenue only, in that, in a tariff for revenue only there are but two parties to the transaction, the government and the importer, but that in a protective tariff there are three parties to the transaction, the government, the importer and the domestic industry to be protected. For this reason he urged that public access be given to the classification of liquidated imports.

George W. Ashworth, chief of the division of customs, spoke on the administration activities of the customs department and urged a codification of custom laws.

Chairman Fordney stated that in the future administrative matters would be considered by small sub-committees, each of which would have a detailed problem in charge, but that the whole committee would consider every question involving schedules.

The Emergency Tariff Bill as passed by the Senate did not contain any amendments directly affecting the mining industry, the amendments proposed for lead, zinc and tungsten being finally omitted.

GOVERNOR PARKER REQUESTS AID OF U. S. BUREAU OF MINES

ACTUAL CONDITIONS in the natural gas fields of Louisiana will be made known to the law makers and the public of that state as a result of an investigation now being carried on there by the United States Bureau of Mines. Governor John M. Parker requested that the work be done and expenses will be borne by the state of Louisiana.

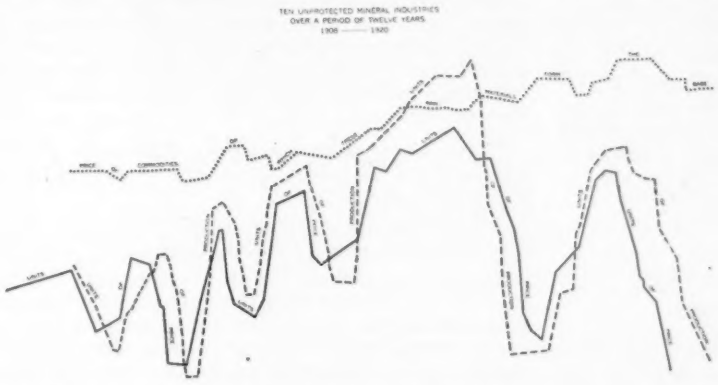
The press of Louisiana has of late carried items frequently calling for conservation of the state's natural gas resources. The usual character of comment, ranging from statements that the supply is nearing exhaustion to assertions that it will last forever, has been heard. Demands for the passage of laws prescribing methods of conservation have become insistent. It occurred to Governor Parker that the situation as it actually exists should be surveyed and outlined by disinterested scientists before the state legislature attempted to enact the necessary measures; hence the selection of the Bureau of Mines.

The investigation will be made by R. A. Cattell, petroleum engineer, who executed a commission for the Bureau of Mines at Muskogee a few years ago and later worked in foreign fields for the Pearson interests. Mr. Cattell will work under the direction of H. W. Bell, engineer in charge of the Bureau of Mines field office at Dallas, Texas. The investigation, which started in the Monroe field in northern Louisiana, will cover a period of several months.

EFFECT OF TARIFF ON PRICES IN THE MINERAL INDUSTRIES

THESE TWO CHARTS represent relative movements of price and production in two groups of mineral industries, protected and unprotected, and the comparative price movement of the industries which are dependent on these industries as their base of raw material supply.

These charts are composites of price and production movements, the ratios being computed in units of price, production, quantity and time peculiar to each industry in question, the ratios for the same period then being co-related.



It will be noted in the unprotected industries that as price falls, production falls with it until at the low point of the price there is a flat level of theoretical non-production, which in some industries is actual non-production and in others is a minimum of production. When this flat level of low production is continued for a long enough time, price immediately starts upward. Production is stimulated thereby until at the high point of price, which may represent profiteering to the producer; price is speedily overtopped by production; stimulated by these high prices, and there is great over-production. Price then starts rapidly down; production follows it until the low point of price is again reached; another flat level of non-production, when price starts back up and there is another big angle which represents excessive prices for the materials and large over-production, followed by rapid cut of price, diminution in production until another low point in the industry is reached, which represents bankruptcies for many operating companies, and a flat level of non-production which accelerates another upward price move.

Under such circumstances the swing of prices is rapid and over a wide area. The important thing about this chart is that the price fixed by the manufacturer who uses any one of these raw materials as part of his finished product, is based not on the low price range nor on the intermediary price range, but on the top price range. The manufacturer must be prepared in the price of his finished product to meet a cost for his raw material represented by the possible high ranges of price. For example, in 1918 when the price of quicksilver, one of the metals from which this composite chart was made up, was at its peak of high price, about $100 per flask, the price of fulminate of mercury caps into which goes 65% of mercury produced, was $17.00 a thousand.

Today with the price of quicksilver at the low point on the chart and at the lowest point seen in years, $30.00 to $35.00 a flask, the price of fulminate of mercury caps is $17.00 a thousand.

This policy on the part of the manufacturer is due partly to the fact that advanced stages of manufacture cannot follow cuts in raw material with immediate accuracy, and partly justified by the fact that the manufacturer must be protected against the possible recurrence of high price in replacing his stocks of raw material. The cost, therefore, of the finished article to the ultimate consumer is based on the top range of cost of the raw material at the points of widest fluctuation.

The lower chart represents price and production movements in ten protected mineral industries over the same period of time. The continuous line represents production and the broken line price, as above. It will be noted that price and production in this chart follow the laws of supply and demand as in the upper chart, but with this vital difference: The industry being protected from extreme low ranges of price by tariff, the price does not drop to a point where there is widespread bankruptcy in the industry and where the price is below the cost of production. Therefore, production does not fall to the flat level of non-production shown in the unprotected mineral industries.

Similarly, as there is no flat level of non-production, there is no rapid stimulation of price which forces production up to a point of over-production. There is a price movement and a production movement in response to the laws of supply and demand, but over a range of differentials scarcely one-third as wide as in non-protected industries. Just as there are no low points, similarly there are no high points of profiteering, and the important thing to the consumer is that the cost of the raw material on which the manufacturer bases the cost of his finished product is at a much lower top range of probable price than is possible under the unprotected industries. Tariff, in short, has acted as a huge economic gyroscope in maintaining a smooth running-level in the price and production movement in the industry so protected.

That this applies to industries other than mineral is shown in the woolen industry. In 1912 a company in the middle west which operated its own woolen mills

where it manufactured wool from entirely domestic sources into woolen cloth, and made this woolen cloth into clothing, this company made a high-class all-woolen suit of clothes which sold at wholesale as low as $8.00 per suit. It did this under a protected market for domestic wool. While a comparison with today's condition is somewhat distorted in view of the economic disturbances following the war, yet with wool on the free list today and the domestic wool lower than it has been for many years and begging a market at any price, this same woolen mill is not selling the same suit of all-wool clothes at $8.00 wholesale; it is selling the suit at from $18 to $20 wholesale. Why? Simply because the manufacturer has had his price raised by an extreme fluctuation in the cost of his raw material. He cannot follow this fluctuation down as rapidly as it occurs in the raw material because he must protect himself against the possibility of a wide upward swing in the cost of this same material, because the market for it is unprotected, and with bankruptcy in the industry, there is bound to be a flat level of non-production which will send prices shooting upward.

Vast Sums of Wealth Recovered From Junk Heaps and Metal Scraps

SECONDARY METALS—those recovered from scrap, sweepings, skimmings and drosses—of the value of $181,841,500 were recovered in the United States in 1919, the totals having just been published by the United States Geological Survey. This figure represents quite a decline from that of 1918, which was $264,298,900. Gold, silver, platinum, iron, steel and ferro-alloys are not included.

Gold and silver valued at $27,592,060 was remelted in 1919. Reports from mints and refineries indicated the recovery during the year of 6,463,002 fine ounces of silver and $19,354,398 in gold. Estimates of the quantity of ferrous scrap remelted during 1919 range from 7,500,000 tons to 8,500,000 tons. Platinum, iridium and palladium worth $8,053,265—or more than the value of platinum and allied metals imported for domestic consumption during the year—were also recovered.

About 287,190 short tons of secondary copper was recovered. Exports of scrap brass and copper fit only for remanufacture amounted to 661 tons of the former and 225 tons of the latter, while imports of scrap copper totalled 2,109 tons and those of scrap brass aggregated 7,933 tons. Of the recoveries of copper during the year, 48,087 tons of pig copper was produced by refineries of secondary materials, also 28,670 tons of copper in alloys other than brass and 174,790 tons of copper in remelted brass. As compared with 1918 there was a decrease of 18,200 tons of pig copper, 55,370 tons of copper in brass and 5,700 tons in alloys other than brass.

Secondary lead recovered aggregated 122,100 short tons, or 25,000 tons more than in 1918. Secondary zinc recoveries aggregated 108,404 tons, or 23.3 per cent of the year's output of primary zinc; antimony, all of which except forty-eight tons was recovered from alloys, 4,399 tons, as compared with 5,226 short tons in 1918; tin, 24,033 tons, valued at $29,868,200, as compared with 23,837 tons valued at $41,381,000 in 1918; aluminum, 18,691 short tons valued at $12,014,600, as compared with 15,050 tons in 1918 valued at $10,113,600; nickel, 2,447 tons as compared with 1,393 tons in 1918.

SOUTH'S MINERAL INDUSTRIES SEEK PROTECTION

THE SOUTH IS TURNING toward protection. The second Southern Tariff Congress, recently held in Atlanta, Ga., drew more than four-hundred business men from all parts of the historic home of free trade who adopted resolutions and sent telegrams to President-elect Harding and to Congress urging enactment of tariff measures adequate to protect American industries from foreign competition.

With the exception of the agricultural contingent, the delegation representing the mineral industry was the largest in attendance at the convention. Herbert Wilson Smith, chief of the Tariff Division of the American Mining Congress, served as chairman of the committee which considered mineral tariffs. This committee reported out the following resolution which was adopted unanimously by the convention:

WHEREAS the necessity and urgency of protection for American industry is now the paramount issue before the Congress of the United States; and

WHEREAS the mineral industry of this country is seriously jeopardized by the invasion of foreign minerals; and

WHEREAS a subcommittee of the Southern Tariff Congress was appointed on January 26, 1921, for the purpose of reporting upon the needs of the mineral industry for protection, and the said committee having reported that the following minerals, among others, are urgently in need of protection from foreign competition—antimony, asbestos, barytes, bauxite, gypsum, chromite, quicksilver, mica, molybdenum, pumice, pyrite and sulphur, potash, graphite, tungsten, flint, tale, manganese, magnesite, lead, clay (kaolin), feldspar, whiting, marble, zinc, monazite sand, ferro-alloys, thorium, iron and steel, fuller's earth; therefore, be it

Resolved by the Southern Tariff Congress, in joint session assembled, That it lends its unqualified endorsement to the protection now being sought by the mineral industries before the Ways and Means Committee of the Congress of the United States; and be it further

Resolved by the Southern Tariff Congress, in joint session, That the Congress express its unqualified approval of such protection on all such minerals as will equalize the cost of production here and abroad, and pledge itself to lend its best effort toward that end.

The telegram sent both to Congress and to President-elect Harding contained the following paragraphs:

"Due largely to foreign competition, all the Southern industries represented in this convention are in a desperate condition, including agriculture, livestock, mining, manufacturing and forest products. These industries are all essential to the prosperity of our country in peace and to its success in war. The producer has been encouraged to increase production in order to meet the world's demand for food, clothing and other products. He has done so at great cost. He is now unable to market his product at a living price or to obtain the credit to hold it for a better market. This condition will inevitably lessen future production and cause great hardship and sacrifice.

"We are for the full employment and a living wage for the wage earner, a living price for products of the farm, the mine and the factory. We believe that it is essential for the assurance of prosperity to have an adequate tariff that will protect the product and industry of our people against foreign competition. In the long run this will mean cheaper cost of living to the consumer as well as greater buying power."

Four members of the American Mining Congress participated in the sessions of the Congress, and one of them, George A. Sharpe of Alabama, was elected permanent head of the Minerals Section. The others were Colonel Joel Hurt and George L. Pratt, of Atlanta, and A. B. Conklin, of Alabama.

METALS PAY LARGEST PROPORTION OF U.S. INCOME TAXES

MANUFACTURERS of metal and metal products paid a larger amount in federal taxes in 1918 than any class of corporations, and agriculture and related industries paid the least. Figures for 1918, the latest year for which comparative tables are available, have just been announced by the Commissioner of Internal Revenue.

Of the total taxes contributed to the government's upkeep by all corporations, manufacturing paid the most, $2,112,044,810, or 66-86 per cent. Of this amount manufacturers of metal and metal products paid $1,003,031,267, or 31.76 per cent of the total paid by all corporations. This was the largest amount paid by any single sub-unit of industry.

The metal and metal products manufacturing group leads all others not only in the amount of net income returned, but likewise in the lowest cost of operation reported. Fifteen per cent of its gross income remained after all deductions had been accounted for. The nearest approach to this record was made by mining and quarrying concerns, with 12.42 per cent.

Agriculture and related industries contributed only $12,741,714 in corporation income taxes, or .4 per cent of the total.

A total of 202,061 corporations reported net taxable income during the year. Of this number, 5,524 came within the strict classification of mining and quarrying concerns (embracing producers merely and not including manufacturers or jobbers of mine products). The gross income of these concerns was $3,597,203,674, with total deductions of $3,029,426,465. Of the deductions, 11.07 per cent was for exhaustion, amortization and depletion. The net taxable income of these concerns was $567,777,209 and the amount of tax paid was $191,364,377. This amount, which included income, war profits and excess profits taxes, was 6.06 per cent of all the taxes paid by all corporations. This tax was distributed among the various branches of the mining industry as follows:

Iron	$1,747,314	Salt	$1,261,078
Copper	9,871,937	All other non-metal mining	3,441,081
Lead and zinc	9,864,903	Miscellaneous mining	13,059,512
Precious metals	2,210,967	Quarrying	2,018,905
All other metal mining	9,866,983	Mining and quarrying-combinations	1,140,672
Coal	76,961,211		
Oil	58,840,626		
Gas	1,079,188		

Forty-eight per cent of companies engaged in mining and quarrying reported no taxable net income. Instead, they reported deficits which totalled $71,473,129.

PAYNE TELLS HOW HE DISPOSED OF WAR MINERALS CLAIMS

IN COMPLIANCE with a resolution introduced early in February by Senator Robinson of Arkansas, Secretary of the Interior Payne sent to the Senate a list of all claimants for relief under the War Minerals Act, with notations of action taken, and with a digest of constructions placed upon the act by the Secretary and the Solicitor of the Department of Interior, the Attorney General and the Comptroller of the Treasury.

The report summarized shows the following: Claims filed, 1,207, aggregating $18,131,493; awards, $2,457,259; amount involved in claims in which awards were made, $7,871,315; amount involved in claims pending, $3,106,697; amount involved in claims withdrawn, $646,577. Claims totaling $6,506.903 were disallowed for the following reasons: No government request, $3,464,023; failed to file questionnaire, $90,338; excluding purchase of property, no loss shown, $199,973; purchase price of property, $275,216; loss on account of negotiations to purchase, $18,564; prospecting under option $3,005; research work, $12,990; expenditures prior to request, $7,506; not of commercial importance, $541,927; no loss shown, $893,197; loss not due to government request, $30,661; money loaned to produce, $6,969; not covered by Act, $909,976; promotion expense, $3,753; contract prior to request, $37,326; ore buying, $7,600; purchase of lease, $2,681; not substantiated $1,192.

DETECTIVE AGENCY CHARGED WITH PROMOTING LABOR STRIFE

EMPLOYERS ARE BEING BLED by a "super-private detective agency" which is responsible for seventy-five per cent of the strikes by machinists' organizations during the last two years, according to charges made by E. C. Davison, secretary of the International Association of Machinists, in an address delivered in Washington. Mr. Davison said the agency made a specialty of stirring up industrial troubles and then securing large sums from employers to settle the disturbances.

A strike of machinists in Akron, Ohio, in 1919, he said, was engineered by fourteen operatives of a private agency who worked their way into the union's ranks. Eight of the fourteen were subsequently shown to have been members of the I. W. W. In many respects the situation at Akron was duplicated at Norfolk, where there was another machinists' strike the same year.

The controversy during the war between Bridgeport, Connecticut, munitions workers and their employers was caused, Mr. Davison said, by these "parasites who make capital out of the disputes between capital and labor." In this particular instance, a charter of a machinists' union with three-thousand members was revoked.

An investigation conducted in New York resulted in the discovery that 107 persons in the employ of the agency were enrolled in the ranks of organized labor, Mr. Davison asserted. The American Federation of Labor, he said, has found it necessary to employ detectives of its own to work themselves into the employ of the "super" detective agency, and thus to detect what the "detectives" were doing. Some of the agency's operatives, posing as labor men, are known to labor leaders.

The method of the "supers," as outlined by Mr. Davison is to first get into a union and work the real workmen into a frenzy over some real or fancied wrong. Then another agent approaches the employer and sells his "confidential" information that the men are about to strike, together with "confidential" reports of the union which really are not confidential at all. A third representative then calls upon the employer and offers his services as mediator, not forgetting to make it plain that it "will cost considerable money." Sometimes they get the money and call off the contemplated strike; sometimes the employer refuses and a strike actually results.

Mr. Davison said that many employers in different parts of the country, when informed by his organization what the "super" detective agency was doing, admitted that they had themselves been its victims.

SURVEYOR GENERAL OFFICES MAY BE ABOLISHED

IF AN IDEA advanced by Representative Sisson of Mississippi and approved by Commissioner Clay Tallman is enacted into law, the offices of surveyors general in thirteen states will be abolished. The House Committee on Appropriations requested Commissioner Tallman to give its members his ideas on the subject. No further action will be taken at this session of Congress, but some disposition of the matter is one of the probabilities of the special session which will convene early next month.

The work of the General Land Office which would be affected by this change is now done by the thirteen surveyors general and the field survey organization. If the change is made there will still be some form of supervision at Denver, but all of the work will be consolidated in the General Land Office at Washington.

Commissioner Tallman explained to the Appropriations committee that the making of surveys on mining claims was supervised by deputy mineral surveyors appointed by the surveyors general. Persons desiring mineral surveys apply to a surveyor general, naming the deputy whom they desire to do the work, and the surveyor general orders the deputy to make such survey, and report to him. The deputy is paid by the party for whom the survey is made under contract. The applicant for survey makes a deposit with the surveyor general for payment of the cost of office work in the surveyor general's office. Official plat and field notes are made of the survey, copy of which is given to the applicant which he uses as a basis for application for patent in the Land Office. At present 115 employes are on duty at offices of the surveyors general.

There are in the General Land Office duplicates of field notes and plats of public land surveys which are on file in the surveyor general offices, although in the absence of an entry of the land surveyed the Land Office would not receive copy of field notes and plats of a mineral survey. Under the proposed consolidation at Washington, Commissioner Tallman said it would be necessary to maintain in each state a field survey station whose reports would be sent to Washington instead of to the surveyors general, the official field notes to remain in the local field surveying organization. Instructions for each survey would also be issued from Washington to the field surveying organization and it would not be necessary to remove official field notes and plats now in offices of the surveyors general, where they are now kept for reference by the field surveying section and for the information of the public. Mineral surveyors might be appointed by the land commissioner, Mr. Tallman said instead of by the surveyors general with the commissioner's approval. Applications for mineral surveys would be made direct to Washington and each order for survey issued to the deputy who would make his report to Washington.

The commissioner proposed a supervisor of surveys at Denver. Consolidation of the surveyor general offices in one office would save expense and correspondence, would consolidate functions and develop a single standard of efficiency. The only disadvantage would be the abolition of the more localized sources of public information, principally in the case of mineral surveys within the state, but the commissioner said this matter could be handled so as to obviate, if not eliminate, this opposition by leaving these offices with their permanent records of which the General Land Office has duplicates, in charge of an assistant supervisor of surveys. The present law provides that the official field notes and plats of the surveyors general shall be turned over to the states when the surveying work in such states is completed.

Commissioner Tallman submitted a proposed bill to carry out the consolidation, providing for its taking effect June 30, 1921.

If the plan is put into effect, offices of surveyors general in Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, South Dakota, Utah, Washington, Wyoming, and Alaska will be abolished.

The bill provides for sending to Washington records and such clerical forces in the surveyor general offices as may be needed in the General Land Office, appropriating $220,000 for expenses.

Last year it cost $221,465 to maintain these offices and the estimate for next year was increased $34,850.

The bill also proposed the establishment of the independent office of the Secretary of Alaska.

The commissioner estimated the consolidation would save $36,315 for the fiscal year 1922 and an additional sum beginning in 1923.

The commissioner said the objections usually raised to consolidation were that it would constitute undue and unnecessary centralization of authority, that the cost of doing the work in Washington would be greater than in the field offices and would result in greater delays in handling the work, that the public directly affected would be deprived of the use of local offices in securing information and that general development in public land states would be impaired and delayed. He held that these objections were not well founded, and said he believed consolidation would result in greater efficiency and economy, although he made it clear that he was not urging abolition of the offices but simply giving his opinion as requested.

LACK OF OIL GAUGERS HURTS LESSEES AND GOVERNMENT

FOURTEEN MILLION BARRELS of oil, upon which the government will receive $6,000,000 royalty, will be produced annually under the leasing law on known producing fields, according to a statement made by Dr. E. A. Holbrook, assistant director of the Bureau of Mines, before the House Committee on Appropriations. Dr. Holbrook appeared in behalf of an appropriation of funds for enforcing the leasing law.

Dr. Holbrook stated that the Shipping Board had been put to great inconvenience, and in some instances had failed to secure the oil it needed, because the Bureau was unable to gauge oil produced by sellers operating under the leasing law. In one instance it was impossible for a refining company to fill a contract for 1,000 barrels per day and impossible for the Shipping Board to receive the oil involved because the oil had not been gauged. The Bureau, Dr. Holbrook said, was unable to gauge the oil because of lack of funds for employing a sufficient number of supervisors. Oil companies had begun to complain that they were suffering serious losses.

Twenty-five men would be the proper number to supervise operations, from the beginning to measuring and delivering to pipe-lines and computing royalties, according to Dr. Holbrook. These agents will be located at Casper, Wyoming, Denver, Colorado, and Shreveport, La. The California State Mining Bureau would take care of operations in that state, and the Wyoming supervisor would look after the work in Montana, until production became larger in these two states.

Even the government is in a sense suffering from conditions which prevail. Dr. Holbrook pointed out that oil companies have offered $9,300,000 in back royalties in exchange for leases, but that the offer could not be accepted until the royalties are properly checked.

COLORADO'S FELDSPAR-MICA FIELDS TO BE DEVELOPED

GEORGE J. BANCROFT of Denver, while in the office of the American Mining Congress, Washington, during the tariff hearings, stated he intended to enlarge activities at his Denver plant, which employed twelve men in feldspar-mica work during the war.

Before coming to Washington Mr. Bancroft visited the mica fields near Asheville and Spruce Pine, N. C., where there are also modern mills. He reported that the quality of mica in these fields was excellent, but felt that the Colorado deposits were decidedly larger. He said that Colorado also has an advantage in freight rates.

He is chiefly interested in securing a tariff to protect the American mica industry against Indian competition. Indian workmen, who are among the most experienced and efficient in the world and are paid high wages as Indian wages generally run, receive thirty cents a day, whereas in Colorado wages for the same character of work average ten times as much. Furthermore, considerable training of workmen will be necessary.

LIME PRODUCTION IN 1920

ABOUT 3,350,000 short tons of lime, valued at $33,518,000, was produced and sold in the United States, Porto Rico and Hawaii in 1920, according to Geological Survey estimates. Output was nine per cent greater than 1919 and also larger than 1918 but not quite equal to that of pre-war years. Its value was considerably in excess of that of any previous year, the average being $10 per ton as compared with $9.50 in 1919 and $8.36 in 1918. Production figures for the last two years follow:

Lime produced in the United States in 1919 and 1920

[Estimate for 1920; final figures in part for 1919]

	1919	1920		Increase or decrease in quantity, 1920
	Total lime (short tons)	Total lime (short tons)	Average value per ton	Total lime (per cent)
Pennsylvania	747,056	738,000	$8.88	— 1
Ohio	506,000	570,000	10.32	+13
Virginia	224,385	256,700	8.05	+14
Missouri	181,000	211,100	10.08	+17
Wisconsin	123,759	161,000	10.32	+30
West Virginia	141,000	141,000	9.29	.....
Indiana	105,952	139,800	10.21	+32
Massachusetts	124,000	126,900	10.94	+ 2
Michigan	124,700	144,000	10.28	+15
Maine	94,000	104,400	16.00	+11
Tennessee	116,970	101,000	7.99	—14
Illinois	64,164	94,400	9.90	+47
Maryland	99,717	94,000	7.00	— 6
New York	79,528	81,930	12.20	+ 3
Texas	51,205	55,900	10.10	+ 9
Connecticut	(a)	(a)	11.00	+ 6
Alabama	48,600	51,300	10.00	+ 6
Vermont	38,150	47,100	10.68	+23
California	39,000	40,000	12.30	+ 3
Washington	21,236	26,330	22.16	+24
Undistributed	142,703	165,140	.....	+16
	3,073,125	3,350,000	10.00	+ 9

(a) Included in "Undistributed."

Butte's Claims for Experiment Station Outlined to Senate

SENATOR WALSH of Montana has been making a personal effort to induce Congress to include in the Sundry Civil Bill an item of $25,000 for the establishment of an experiment station of the Bureau of Mines at Butte. The House did not include the item in the bill, but the Senate did, and when the measure went to conference this provision was contained therein.

Mining rather than metallurgical problems will be handled at the Butte station in case it is established. The director of the Bureau of Mines recently stated that there was no place in the world where mining problems could be studied to better advantage. During discussion of the appropriation Senator Walsh submitted to the Senate a written statement explaining the necessity for the proposed Butte station and outlining the particular characteristics of the work there which would differentiate its investigations from those carried on by other stations.

At many experiment stations of the Bureau of Mines, Senator Walsh said, attention is given primarily to metallurgical treatment of ores, including devising of new methods of treatment, with the object of evolving processes which make the treatment of complex and low grade ores a paying proposition. Such work as is done at the other stations could also be done at Butte, but the most important work would consist of the investigation of purely mining problems such as those arising out of ventilation, fires, dust, drilling, and handling of explosives.

"The greatest mining camp in the United States, and perhaps in the world, the city of Butte, has until now been neglected," Senator Walsh said to the Senate. "From an area there, the radius of which does not exceed one mile, one-fifth of the world's production of copper comes. The same region is fast becoming exceedingly important in the production of zinc, and the state of Montana leads in the production of silver, a by-product of the copper ores of that district."

Senator Walsh said also that there was perhaps no mining camp in the country where as much money had been spent on mechanical appliances as had been spent at Butte. The companies there have spent thousands of dollars on safety appliances both for underground and surface use. Many of them are experimenting with methods of handling labor and with fire prevention measures. These companies will cooperate with the Bureau of Mines if a station is established in Butte, and it is the opinion both of Senator Walsh and of the director of the Bureau of Mines that a station there will be one of the most useful in the United States.

GLACIER NATIONAL PARK HIGHWAY

THE NATIONAL PARK SERVICE has submitted to Congress estimates for the construction of a road crossing the Continental Divide and connecting the east and west sides of Glacier National Park. The project calls for a dirt road seventeen feet wide with maximum grades of eight per cent, easy curves and rustic log bridges. Its length will be 39.275 miles and the cost $563,000. The road will complete the one missing link in the National Park-to park Highway and will be one of the most spectacular and scenic highways in America.

The National Park Service has let a contract for construction of a suspension bridge across the Colorado River in Grand Canyon National Park, Arizona. The bridge will be five feet wide with guard rails of heavy mesh wire. The floor will be suspended from the main cables by three-eights inch steel wire ropes six feet apart, attached to floor beams by three-eighths inch steel stirrup rods three feet apart.

WORLD MARKET CONDITIONS SUMMARIZED BY COAL EXPORT COMMITTEE

IN MAY 1920, at the request of the Bureau of Foreign and Domestic Commerce, the Coal Export Committee on the American Mining Congress, of which Dr. Henry Mace Payne of New York is chairman, prepared a questionnaire for submission by the bureau to the various United States consular offices in foreign countries. This questionnaire was first sent to the principal companies in America interested in the export of coal, in order to secure from them suggestions regarding information essential to the coal trade. The bureau then transmitted these questions abroad and to date sixteen replies have been received. The questionnaire and summarized replies are as follows:

1. *What are the Relative Proportions of Steam and Gas Coal Used?*

Mexico, steam exclusively; Belgium, Belgian production is 10 percent gas coal, 26 percent coke and forge coal, 43 percent "open burning" (low volatile) coal, 21 percent slow burning anthracite. It is therefore necessary to import considerable quantities of gas coal; Switzerland, gas exclusively; Denmark, gas 30 percent, steam 70 percent; Netherlands, 10 percent gas, 65 steam, 25 percent anthracite and briquettes; Turkey, 15 percent gas, 85 percent steam; Czecho-Slovakia, lump gas preferred; Warsaw-Poland, 3 percent gas, 97 percent steam; Spain, 30 percent gas, 70 percent steam; Italy, 25 percent gas, 75 percent steam; Peru, 80 percent gas, 20 percent steam in the city of Lima, 50-50 for Peru; Australia, imports no coal, is developing an export trade; Africa, supplies its own needs and does some exporting; Norway, 20 percent gas, 80 percent steam; Finland, gas used to small amount in railroad shops. Three municipal gas plants. Abo, Helsingfors and Viborg. Wood the principal fuel.

2. *Is Mine Run or Screened Lump Preferred for Steam Purposes?*

Mexico, run of mine; Belgium, Switzerland, Spain, Italy, Peru, Netherlands and Czecho-Slovakia, screened; Denmark, screened for the state railways, no choice for steam or gas purposes; Turkey, screened lump exclusively; Warsaw-Poland, railroads use lump. Industrial plants use ¾-inch slack or pea; Norway, screened preferred but much run of mine used; Finland, see Question No. 1.

3. *What Proportion of Plants Using Steam Coal Have Stoker Grates?*

Mexico, all hand firing; Belgium, twenty large plants in Belgium have stoker grates. Special adjustment is required for burning Belgian coal which requires a very thin bed. Also the sulphur in Belgian coal is so high that standard grate bars have been known to fuse within 48 hours. A mixture of hematite and ferrochrome is necessary to withstand this action; Switzerland, most large plants use automatic stokers; Denmark, 10 percent of the plants, consuming 40 percent of the total fuel used for steam purposes; Netherlands, 12½ percent; Turkey, Finland, Peru, none; Czecho-Slovakia, Norway, Spain, a few; Warsaw-Poland, 75 percent of steam coal consumers, except railways; Italy, 10 percent of the steam plants representing 10 percent of the boiler area.

4. *Are These Parties Buying Coarser Coal and Crushing It, Or Using Slack Coal?*

Belgium, Netherlands, Warsaw-Poland, Finland, slack; Switzerland, nut coal up to 30 mm.; Denmark, crushers are used; Czecho-Slovakia, lumps are hand crushed; Norway, run of mine used.

5. *How Many of the Plants Visited Have, Or Have Not, A Smoke Ordinance?*

Belgium, no specific ordinance, but each plant is liable for specific damages. Locomotives are provided with smoke consumers; Switzerland, a few; Denmark, plants are ordinarily located away from centers of population, but where necessary smoke consumers are installed; Netherlands, smoke ordinances pending as the result of government investigation into excess amount of carbon in smoke; Turkey, Czecho-Slovakia, Warsaw-Poland, Mexico, Norway, Finland, Peru, none; Spain, ordinances exist but are not enforced; Italy, a few cities have smoke ordinances

6. *Do the Railroads Use a High or Low Volatile Coal?*

Mexco, any kind; Belgium, 47 percent of railroad fuel is low volatile coal and briquettes. The balance is high volatile. This matter is regulated by the Belgian Railroad Administration according to the district in operation; Switzerland, high volatile; Denmark, high volatile; China, any kind; Netherlands, ⅓ high volatile, ⅔ low volatile, lignites, or briquettes; Turkey, high volatile when it can be obtained; Czecho-Slovakia, any kind, account of poor storage facilities; Warsaw-Poland, both; Spain, low volatile not exceeding 20 percent, ash below 8 percent, B. T. U. in excess of 14,400; Italy, low volatile; Peru, high volatile, or briquettes exceeding 14,500 B. T. U.; Africa, any kind, including briquettes; Norway, high volatile; Finland, wood exclusively.

7. *Are Storage Facilities Such, in General, That a Sufficient Quantity Can Be Received During the Summer Months and Safely Stored Without Danger of Fire for the Balance of the Year?*

Mexico, yes, but where storage is required petroleum is favored; Belgium, no. Shortness of haul and diversified distribution have rendered storage unnecessary; Denmark, state railways, no gas plants 3 months, power plants 6 months; Turkey, no. There are only five coal depots, none of which has a capacity exceeding 10,000 tons; Spain, no. Shipments must come regularly throughout the year; Italy, yes. The storage of British coal has been very satisfactory. American coal when received in a damp condition gives trouble; Norway, yes, for six months during the winter; Switzerland, Netherlands, Africa, Peru, yes; China, Czecho-Slovakia. Warsaw-Poland, no.

8. *Is the United States a Normal Source of Supply, or Will the Demand for American Coal Become Less and Less? If the Latter, How Long will the Present Demand Continue?*

Mexico, in 1913, the toal consumption of American coal was 365,000 tons; in 1919 106,137 tons. Due to the development of the petroleum industry and unsatisfactory tranportation, it will probably become less; Belgium, Belgium normally receives 68 per cent of her imported coal from Germany, 29 percent from Great Britain and 3 percent from the United States. Present exchange rates practically close the Belgian market to American coal; Switzerland, yes, indefinitely, providing the quality of American shipments is maintained; Denmark, until June, 1919, no coal except from Great Britain and Germany was imported. Since that date, American coal has been increasingly in demand, and it is probable will continue so, providing the integrity of American coal exporters is established and maintained; China, no; none has been imported since 1918; Netherlands, the United States has not previously been a normal source, but it is stated that if prices and quality can compete with British coal, America can maintain a permanent footing; Turkey, before the war, Cardiff coal was principally used. Small quantities of German, Belgian and Russian coal were imported. Within the past two years Pocahontas coal has been introduced and has been highly satisfactory. If satisfactory competition can be maintained, even after England lifts the embargo on coal the demand for American coal will continue and increase, as Turkish coal although low in volatile matter is excessively high in sulphur; Czecho-Slovakia-unusual difficulties militate against coal importation, as Czecho-Slovakia has no adequate seaports and storage facilities are limited. A great diversity of return cargoes, however, is available from river ports to the sea. A coal council has been created to cooperate with the University of Public Works in the regulation of distribution, price fixing, etc. There are local mines, which also produce a limited amount of sub-bituminous coal and also of lignite; Warsaw-Poland, no; Spain, until 1916 no material quantity of American coal was imported into Spain. In 1917 Pocahontas coal was successfully introduced and would meet with a ready market if c. i. f. prices could be quoted under 185 pesetas (Aug., 1920); Italy, prior to the war, 90 percent of the coal imported was from Great Britain, the balance from Central Europe. In May, 1920, importations of American coal exceeded those from Great Britain. During the past six months receipts of American coal declined due (1) to embargoes in the United States which prohibited the filling of contracts and (2) the progressive cheapening of the lire. If British production increases and the exchange rate continues at the present unfavorable figure, the situation will rapidly revert to that of ante-bellum times; Peru, all the gas coal now comes from Australia, steam coal from the United States. Australian gas coal has been in demand, although costing $6 per ton more than American coal, because of the long established trade and because it is exceedingly hard and lumpy. There is no reason why American gas coal should not meet with favor if properly introduced; Norway, no. Great Britain by virtue of cheap freight rates is the normal source of supply. Any possibilities for American coal will depend on the future production and price of English coal; Finland, no.

9. *In the Municipal and Similar Gas Plants, is There any Legal Restriction on the Amount of H_2S in the Gas Per 1000 Cubic Feet?*

Mexico, petroleum and charcoal are used; Belgium, the limit is such that the H_2S must not color paper impregnated with 1 percent solution of acetate of lead; Switzerland, 2.5 percent sulphur in coal; China, yes, in Shanghai; Italy, gas must be free from H_2S in so far as the accepted industrial methods of purification will permit; Peru, there are no gas plants; Norway, Denmark, Netherlands, Turkey, Czecho-Slovakia, Finland, Warsaw-Poland, Spain, no.

10. *Are the Purifying Boxes Ample, or Restricted?*

Mexico, none used; Czecho-Slovakia, restricted; Warsaw-Poland, Belgium, Switzer-

land, Demnark, Netherlands, Spain, ample; Italy, boxes are based on a rate of 5 to 7 mm. per second for passage of gas, with coal containing not to exceed 1 percent sulphur. Norway, restricted. Finland, ample. At Helsingfors there are three boxes of 64 square meters with the purifying layer 1 meter thick.

11. *What is the Maximum Percentage of Sulphur in Coal these Plants Can Use in Emergency?*

Mexico, no official limit, usual practice; Belgium, have been compelled to use as high as 6 percent. Belgian coal being normally high in sulphur, ample provision is made for purification; Switzerland, 2.5 percent; Denmark, 2.5 percent; Netherlands, no limit, similar to Belgium; Turkey, Turkish coal contains so much sulphur that plants have to be specially constructed; Warsaw-Poland, 4 percent; Spain, the only limit on coal laid down by the Madrid gas plant is that volatile matter shall not be less than 30 percent and ash not more than 18 percent; Italy, 3 percent; Norway, 2.5 percent; Finland, sulphur content of gas must not exceed 2 grams per cubic meter.

12. *What Type Retorts are Used:—Horizontal? Vertical? Inclined?*

Belgium, principally horizontal; a few inclined; Switzerland, all three; Denmark, horizontal, the Copenhagen Municipal Gas Works are planning to build vertical retorts; Netherlands, all three; Czecho-Slovakia, Norway, horizontal; Warsaw-Poland, vertical; Spain, the older retorts are vertical; Italy, the older plants have horizontal retorts. Newer ones are inclined, while the latest equipment is vertical; Finland, vertical at Helsingfors, horizontal at Abo and Viborg.

13. Are They Hand Charged or Mechanical?

Belgium, Denmark, Warsaw-Poland, Italy, Finland, mechanical; Czecho-Slovakia, Spain, Mexico, hand; Norway, Netherlands, Switzerland, both;.

14. What is the Average Yield of Gas per Lb. of Coal?

Belgium, at present, 230-285 cubic meters per ton. Prior to the war 400 cubic meters. From 70-100 litres of ammonia and 55-90 litres of tar as residue; Switzerland, 330-360 cubic meters from 1 ton of coal; Denmark, 5 cubic feet of gas per lb.; Netherlands, 5-5.6 cubic feet per lb.; Czecho-Slovakia, from sub-bituminous coal 8,830-9,890 cubic feet per ton. From lignite 9,890-11,650 cubic feet per ton; Warsaw-Poland, 430 cubic meters per ton of coal; Spain, 300 cubic meters per metric ton. Water gas has never been tried in Spain; Italy, 250-300 cubic meters per ton; Norway, 360-400 cubic meters per ton; Finland, 300-320 cubic meters per ton. At present 30 retorts are operated on coal and 70 retorts on birch wood, the temperature of the retort is only about 1,200-1,400° C., so the yield is less.

15. *Is the Manufacture and Sale of By-Products, Coke, etc., an Essential Item?*

Mexico, Finland, no; Belgium, yes, especially coke and coal tar products, Switzerland, yes, principally coke; Denmark, yes, except that tar is disregarded; China, in the Kailau Mining Administration, yes; Netherlands, yes; Turkey, only for coke; Norway, Czecho-Slovakia, yes, for coke and tar; Warsaw-Poland, yes for tar and ammonia; Spain, yes, for all by-products; Italy, yes, entire cost of overhead and of production are met from by-products.

16. *Is the Fusing Point of Ash Considered in Selection of Coal?*

Mexico, China, Turkey, Czecho-Slovakia, Warsaw-Poland, Spain, Italy, Finland, no; Belgium, Switzerland, Denmark, Netherlands, Norway, yes.

17. *Does the Consumer Usually Purchase Coal Direct, or Through Importing Firms or Agencies?*

Mexico, only the large mining companies who buy direct; Belgium, through brokers who arrange long terms of credit for the consumer; Switzerland, through the official purchasing agency in New York; Denmark, large consumers direct; small ones through agencies; Netherlands, Turkey, through importing firms; Czecho-Slovakia, China, direct; Warsaw-Poland, through state coal offices; Spain, railroads, gas plants and steel works buy direct, smaller consumers through importers; Italy, through the Royal Italian Commission in New York and also through direct representations of American Exporters who have gone to Italy. Purchases for private account are made through importing firms or agencies of American companies. ;Peru, through importing houses, except that steamship companies buy direct; Norway, before the war through local agents. Recently from representations of American exporters; Finland, through importing agencies.

18. *Under the Present Existing Rates of Exchange, Does the Consumer Usually Have to Finance his Coal Supply Individually, or is Coal Purchased Collectively, Upon an Established Collective Credit?*

Belgium, co-operative associations; Switzerland, handled by the government; Netherlands, handled by the government on individual credits; Turkey, irregular; 10-15 days credit is usual; Warsaw-Poland, handled by the government; Czecho-Slovakia, Spain, Mexico, Italy, Denmark, Peru, China, individually; Norway, individually. Efforts now being made to establish collective buying; Finland, irregular.

19. *What are the Terminal Conditions, and are Ships Unloaded for a Year with Low Average Demurrage at the Port?*

Mexico, 400 tons per day at Vera Cruz, Salina Cruz, and Puerto, Mexico; Belgium, no congestion at Ghent or Antwerp. Unloading at Antwerp is by electric or hydraulic crane or by floating crane. No car shortage. Arrangements may be made for permanent moorings, quays, etc., at reduced rates. Labor is more efficient than at any other northern port; Switzerland, most of the coal is shipped to Antwerp, Rotterdam or Genoa; occasionally to Cette or Dunkirk; thence by barge up the Rhine, or by rail; Denmark, automatic cranes and appliances, in Copenhagen. At Aarhus, Aalborg, Korsor, etc., 500-700 tons per day; China, see Trade Commissioner Whitham's reports; Netherlands, ships unloading at Amsterdam and Rotterdam usually earn despatch money. Demurrage practically unknown;Turkey, demurrage rates at Constantinople are very high. The port is always congested. Cargo boats must be unloaded into lighters. Lighterage, labor and spillage are very expensive; Czecho-Slovakia, discharge facilities are inadequate. Low water at times makes discharge impossible; Warsaw-Poland, Poland's facilities are through Danzig and are therefore limited; Spain, 400 tons per day; Italy, Genoa has been continuously overtaxed for 5 years on account of large quantities of Swiss goods passing through the port. The ports of Spezia, Leghorn and Naples on the west coast are recommended for diversion, although they increase the rail haul. The new port of Savona is being developed to relieve Genoa. The newly acquired port of Trieste is splendidly equipped with electric cranes, docks, warehouses, etc.; Peru, discharge is difficult except at Callao. Demurrage charges are about average for the west coast; Norway, well equipped. Ordinarily no demurrage; Finland, poor, but demurrage rates low.

20. *What are the Prospects for Handling Return Cargo and if any Available of What Nature?*

Mexico, good; Belgium, plate glass, glassware, textiles, gloves, artificial silk, chemicals, and dyes, sugars and chicory, copper, ivory, copal, Finnish and Scandinavian lumber, rails, ingots, blooms, Thomas slag; Denmark, would be necessary to go on to Baltic ports for iron ore, timber, wood pulp, stone, etc., to England and France, and there obtain cargoes for United States. Occasionally a cargo of Danish flint, pebbles or chalk is shipped to the United States; China, ample cargo available but no demand in United States for Chinese products; Netherlands, good for handling German exports; Turkey, return cargoes from Constantinople, and the Black Sea ports are always available such as wool, hides, gum, opium, poppy seed and tobacco; Czecho-Slovakia, lumber, magnesite, Gablonz goods, glass, china, porcelains, sugar, malt, hops, bent wood furniture, machinery, paper, gloves, sodium cyanide, dyes, colors and cotton goods. Discharge facilities are inadequate; Warsaw-Poland, fair; Spain, great scarcity. As a result, pyrites from Huelva are transported to Baltimore at 50 percent the rate to Great Britain; Italy, practically nothing but Italian marble on which freight rates are low and much time consumed in loading; Peru, large quantities of sugar, cotton, ores and native products. No difficulty in securing cargoes if sailing dates are advertised; Norway, good. Iron ore, paving stone, salt petre, canned fish, fish meal, timber, paper, paper pulp. Many ships also carry cargoes to other European ports and then reload for the United States; Finland, freights from Finland are so low that it is usually cheaper for vessesl to return without cargo than to delay for loading Finnish lumber.

21. *Has British Coal ever Controlled your Fuel Market, and if so what Percentage of British Coal is being Used Now; Also What Percentage of American Coal was Used When Britain had Available Supply?*

Mexico: Germany, 9,594 tons, Australia, 26,801 tons; Canada, 2,999 tons; United States, 364,536 tons; Great Britain, 31,978 tons; Japan, 14,620 tons. Between 1900 and 1910 all British coal was manufactured into briquettes and used on British owned railroads. Belgium, See Question No. 8. Switzerland, before the war English coal in Switzerland was exceptional. Now England supplies 25 percent and the United States 50 percent; Denmark, England 50 percent, United States, 50 percent; China, no; Netherlands, in 1914: Germany 83 percent, Great Britain 1.5 percent, Belgium 1.4 percent, United States 14.1 percent. In 1920 the United States supplied about 50 percent; Turkey, British coal controlled the market until the war. Due to the British embargo only American coal is being imported at present; Warsaw-Poland, small quantities of British coal has been imported through Danzig and Riga; Spain, British coal normally dominated the Spanish market. At present American coal is rapidly supplanting it; Italy, see Question No. 8; Peru, before 1914 all coal came from Great Britain. Since that time coal from the United States has been the principal supply until 1920, when Australian coal entered into competition; Norway, until the middle of 1919 Norway's coal came principally from Great Britain, with small quantities from Spitzbergen. On account of the high cost of English coal, during the last half of 1919 and all of 1920 imports from the United States have exceeded those from England; Finland, British coal has always dominated the market, although during recent years the railways purchased 50 percent of their coal from German Westphalia.

22. *What are the Discharging Facilities at Unloading Ports?*

Mexico, see Question 19 (Mexico); Belgium, Antwerp, 500,000 tons per month, Ghent 250,000 tons per month. If the Antwerp port authorities brought back the floating derricks rented out by them in Ghent and Rotterdam, their capacity would be 1,000,000 tons per month. The most practical method of selling American coal in Belgium would be to organize a sales office at Antwerp with a large yard on the river front where boats could be unloaded; Switzerland, 700-1,000 tons per day; Denmark, normal discharge; China, see Trade Commissioner Whitman's reports; Netherlands, equal to all demands; Turkey, lighterage facilities are controlled by the Levant Stevedoring Company, a combination of six shipping agents representing the principal British lines. Prices for lighterage alone range from Ltq. 10 to Ltq. 15 per lighter per day; Warsaw-Poland, Danzig is capable of much improvement; Spain, lighterage necessary from vessel to shore, where cranes unload to dock; Italy, see Question No. 19 (Italy); Peru, Callao has a good harbor. Paita is fair. All other ports are open road steads except Chimbota which is a land-locked harbor. Barge discharge is necessary at all ports; Norway, 1,000 tons per day in Christiania, Bergen, Christianssand, and Trondhjem. 500 to 600 tons in other ports; Finland, 400-500 tons per day.

23. *Can Steam Consumers other than Railroads use High Volatile Coal as well as Low Volatile?*

Mexico, Belgium, Switzerland, Netherlands, Warsaw-Poland, Spain, Peru, Finland, yes; Denmark, no; Turkey, yes, although most of the coal imported is for bunkering purposes and therefore preferably low volatile; Italy, all plants in Italy prefer Cardiff coal. It has been used for generations and is well known. Georges Creek and Pocahontas enjoyed a high reputation in Italy and were considered by experts to be the equal of Cardiff. All kinds of coal, however, have recently been shipped to Italy under the generic names of "Georges Creek" and "Pocahontas." As a consequence these names no longer convey their former significance of superiority; Norway, low volatile preferred but high volatile can be used in emergency.

OKLAHOMA COMMERCE CHAMBER WORKS WITH BUREAU

PRODUCTION PROBLEMS of the Deaner oil field, Okmulgee County, Oklahoma, are being investigated by the Bureau of Mines. Most attention will be given to the difficulties caused by water. It is probable, but not certain, that this investigation will be extended later to the Slack field, also in Oklahoma.

The Okmulgee Chamber of Commerce and leading oil companies operating in the Okmulgee district requested this investigation and will co-operate actively in carrying it on. The work is being done by M. J. Kirwan and F. X. Schwarzenbek, petroleum engineers.

APPLICATIONS FOR PERMITS NUMBER NINE THOUSAND

MORE THAN 9,000 applications for prospecting permits under the act of February 25, 1920, had been filed with the General Land Office on February 20. They included about 600 for coal, 275 for phosphate and sodium and more than 8,000 for oil and gas.

"MOUNTAINS OF SHALE" NOT ON EASY STREET

ITEMS OF INVESTMENT and expense, as well as items of profit, must be considered in shale oil production just the same as in any other business. There is nothing original or startlingly new about this statement, but there are apparently so many people who do not fully realize the importance of it that the United States Bureau of Mines has felt impelled to make formal announcement to this effect.

Letters of inquiry regarding the possibilities of producing oil—and wealth— from shale are received by the Bureau of Mines, either in Washington or at its various stations, practically every day. Some of these communications display a marvelous faith in the "easy money" possibilities lying in shale oil retorting. Some of the writers calculate that they can extract so many gallons of oil from a ton of shale, that they can get so many tons of shale from a hill of a certain size, and that they can therefore amass considerable wealth in a stipulated and reasonably limited period of time—and they sit down and write the Bureau of Mines if the prospect is as alluring as they think it is. The Bureau of Mines is now able to supply all such inquirers with a formal scientific paper which shows most emphatically that it is not. It is known as Serial No. 2214, and was prepared by L. H. Sharp, chemical engineer, and A. T. Strunk, accountant, of the Bureau of Mines, who are conducting shale investigations in Colorado in co-operation with the State of Colorado. Messrs. Sharp and Strunk do not discourage shale oil development or minimize possibilities in this direction. They limit their paper to a statement of actual business conditions as revealed to them by operators.

The known sources of income from shale products are found to consist of crude oil, gasoline, kerosene, gas oils, lubricants, wax, possibly ammonium sulphate, and producer gas from spent shale when ammonium sulphate is made. It is pointed out that other products may, in isolated instances, yield profits, but that it is not safe to figure on them yet. Production of these commodities has been shown by Scottish experience to be profitable. Prospective investors are told that they must allow for refining losses larger than those from crude petroleum, and that in marketing expense calculations should be included expenditures for educating the public to the use of products different, but not inferior, to those secured from crude petroleum.

LESSONS DRAWN FROM MEMPHIS GASOLINE DISASTER

EXPLOSION of a car of absorption gasoline on January 24 at Memphis, Tennessee, with a consequent loss of eleven lives and the serious injury of nineteen persons, has been made the occasion of a special bulletin by the Bureau of Mines. D. B. Dow, petroleum engineer of the Bureau of Mines, says that the explosion is a striking example of what may take place at any time in any city by departure from the precautionary measures which should always be taken in handling gasoline, but more especially when handling natural gas gasoline.

The investigation conducted by Mr. Dow and Memphis authorities showed that one tank car of gasoline had been opened without relieving the pressure within. It was believed that the relief valves had been giving off vapors previously, and it was estimated that at a pressure of twenty-five pounds the tank popped. The removal of the dome, resulting in the sudden relief of pressure, caused both vapor and liquid gasoline to boil out of the car in large quantities. A stiff wind carried the vapors across the street, mixed them with air, and formed a readily explosive mixture. The vapor was ignited by fires burning in the open grates of buildings on the opposite side of the street from the tank cars. There was an instantaneous explosion which demolished every house on the block, and another explosion when the flames burned back to the tank cars and ignited the vapors still escaping.

The lessons drawn by the Bureau of Mines from the explosion are that the Interstate Commerce Commission regulations requiring a certain voidage above gasoline in every gas car must always be complied with, and that the safety valves on every tank car should be made use of.

METHODS OF COMPUTING OIL ROYALTIES

THE GOVERNMENT ATTITUDE toward lessees of oil and other mineral lands is that of a partner. This view of the relation was taken by F. B. Tough, government supervisor of oil and gas regulations, at a meeting in Denver of about thirty men who represented ninety per cent of the producing interests of Wyoming. Mr. Tough made the point that since the government was a partner, it was always willing to listen to suggestions and recommendations.

One of the chief subjects discussed at this meeting related to methods for computing government royalties. Mr. Tough explained the system which was then and still is in vogue, and no objections were made to it by any one attending the meeting. These methods, which the government is willing to have its "partners" criticize and aid in revising should it become necessary, are grouped under the headings of hypothetical cases and are as follows:

Case 1.—Where no new wells have been brought in during the calendar month. Count as producing wells each well which had produced fifteen days or more during the month and disregard those which have produced less than fifteen days during the month.

Case 2.—When initial production of a lease is made during the calendar month. Compute royalty on basis of well days producing.

Case 3.—Where new production is brought in during the calendar month on a previously producing lease it will be carefully reviewed by the Supervisory office of the Bureau of Mines and the officials of the company and the best method determined.

Case 4.—"Head-Wells" which make their best economical production by intermittent pumping will be considered as steady producers if so operated throughout the month.

GOLD AND SILVER IMPORTS AND EXPORTS

THE FEDERAL RESERVE Board has announced gold and silver imports and exports for January as follows (Imports consist of receipts by the United States from countries listed on the left, exports of shipments from the United States to countries listed on the left).

GOLD

	Imports	*Exports*
United Kingdom—England	$22,275,781	....
Austria	4,000	....
Denmark	536	....
France	4,695,491	....
Germany	61	....
Greece	442,554	....
Italy	5,000	....
Netherlands	394,287	....
Spain	39,280	....
Turkey in Europe	220,000	....
Total Europe	$28,076,990	....
Canada	188,123	$180,177
Costa Rica	104,870	....
Honduras	26,450	....
Nicaragua	76,594	....
Panama	81,860	....
Salvador	127,360	....
Mexico	505,832	2,191,203
Cuba	6,122	50,000
British West Indies	3,908	....
Dutch West Indies	483,800	....
Total North Amer.	$1,604,919	$2,421,380
Argentina	9,060	....
Bolivia	560	....
Brazil	190	24,300
Chile	14,321	....
Colombia	975,325	....
Ecuador	64,757	....
Dutch Guiana	6,517	....
Peru	118,924	....
Venezuela	112,235	....
Total South Amer.	$1,301,889	$24,300
China	1,311,561	....
British India	1,014,025	....
Dutch East Indies	75,449	60,000
Hongkong	1,042,000	219,300
Japan	2,101,883	....
Total Asia	$5,544,918	$279,300
Australia	1,459,950	....
Philippine Islands	89,988	....
Portuguese Africa	115,015	....
Total all countries	$38,193,669	$2,724,980

SILVER

	Imports	*Exports*
France	$41,626	....
Germany	7,237	....
Greece	187,655	....
Spain	552	....
United Kingdom—England	5,497	$1,370,145
Total Europe	$242,567	$1,370,145
Canada	242,264	259,991
Costa Rica	2,539	....
Honduras	104,070	....
Nicaragua	27,019	....
Panama	2,337	1,000
Salvador	367	....
Mexico	3,390,654	449,798
Cuba	....	282,446
British West Indies	....	87,250
Total North Amer.	$3,769,250	$1,080,485
Argentina	856	....
Bolivia	34,323	....
Chile	136,355	....
Colombia	19,163	142,500
Ecuador	6,119	....
British Guiana	3,993	....
Dutch Guiana	14	....
Peru	529,754	....
Venezuela	132	....
Total South America	$730,709	$142,500
China	101	896,263
British India	....	667,813
Dutch East Indies	83,461	....
Hongkong	....	2,298,062
Japan	....	235,480
Total Asia	$83,562	$4,097,618
Philippine Islands	1,303	....
British South Africa	480	....
Portuguese Africa	10,997	....
Total all countries	$4,838,868	$6,690,748

AMERICAN FLUORSPAR SUFFERED FROM FOREIGN IMPORTATIONS

TOTAL SHIPMENTS of American fluorspar in 1920 were estimated by the United States Geological Survey at 186,000 short tons, valued at $4,544,000, as against 138,290 short tons valued at $3,525,574 in 1919. The increase in quantity was 34 per cent and in value 29 per cent, but 1920 shipments were still about 29 per cent less than those of 1918, the record year.

One Lehigh Valley consumer reported that the best grades of domestic fluorspar were superior to those of foreign origin, but that his concern imported large quantities from England because ocean freight rates were cheaper than rail rates from Illinois, Kentucky, Colorado and New Mexico, which states rank in the order named as the largest American producers. Importations during 1920 totaled 24,610 short tons as against only 6,943 tons the year before.

TALC OUTPUT BREAKS RECORDS

PRODUCTION OF TALC in 1920 was the largest in history, according to Bureau of Mines figures. It was estimated at 213,000 tons valued at $2,360,000, or an increase of 26 per cent in quantity, 6.75 per cent in price and 34 per cent in total value over 1919.

Imports also were greater than at any previous time. Estimates place the total at 24,000 tons valued at more than $475,000, as against 14,602 tons valued at $259,004 in 1919. Seventy per cent of imports came from Canada, 20 per cent from Italy, 8½ per cent from France and the remainder from various countries.

Vermont led other States with an output of 94,000 tons valued at $830,000. New York was second and California ranked third. In California the cutput has increased rapidly since 1912.

ENORMOUS OIL SHALE ACREAGE

FOUR MILLION acres in Colorado, Utah and Wyoming had on February 15 been classified by the Geological Survey as oil shale land subject to leasing.

PROMOTER MAY TELL CONGRESS ALL ABOUT RUSSIA

WASHINGTON D. VANDERLIP of California, whose plans for developing Russian mineral resources have received great publicity all over the world during the last few months, will probably be called to testify before the House Committee on Foreign Affairs. The State Department has informed the committee that the platinum mines of Russia were practically exhausted during the war, but that the development of mining in Russia presented no obstacles which were considered insurmountable by American enterprise.

JANUARY RAILROAD RED BOOK

GOVERNOR SHOUP of Colorado, Ex-Governor Bamberger of Utah and numerous well known writers and authorities are contributors to the January issue of the "Railroad Red Book," issued by the Passenger Department of the Denver and Rio Grande Railroad. Reviews are found in this issue of all commercial lines during 1920 and future possibilities in mining, oil and oil shale, manufacturing, agriculture and general development. In this issue there are ten articles about the Inter-mountain West, sixty-four about Colorado, thirty-four about Utah and nine about New Mexico, as well as the usual general information.

AUTOMOTIVE FUEL TESTS

AT THE REQUEST of other government departments, the Bureau of Standards is making tests on special blended automotive fuels. Representatives of the Bureau and other governmental divisions have also held conferences with members of the Fuel Research Committee of the Society of Automotive Engineers, and with representatives of other organizations, with a view to adopting a definite program for investigating automotive fuel problems.

INTERIOR DEPARTMENT EMPLOYMENT STATISTICS.—Before his retirement Chief Clerk Ayres of the Interior Department presented figures to the House Committee on Appropriations showing the following minimum and maximum salaries of employes of that department: Bureau of Mines. 673 employes, minimum pay $720 a year, maximum $6,000; General Land Office, 527, minimum, $900, maximum $3,600; Indian Office, 5,367, minimum, $720, maximum, $5,000; Geological Survey, 839, minimum, $60, maximum $12,000 (one employe only); Reclamation Service, 6,567, minimum, $480, maximum, $7,500; Bureau of Education, 203, minimum, $900, maximum, $3,500; National Park Service, 225, minimum, $900, maximum, $4,000; Alaskan Engineering Commission, 4,418, minimum, $900, maximum, $15,000 (one only); total, 20,020, minimum, $60, maximum, $15,000; average basic salary, $879.24; 268 employes retired; 84 vacancies.

D. C. WILLS, member of the Federal Reserve Board, will retire from that body at the expiration of his term on March 4. He will return to Cleveland and resume his former position as federal reserve agent.

WAR MINERALS APPEALS CAMPAIGN CAUSES CONTROVERSY

THE CONTROVERSY between war minerals claimants whose claims have been disallowed in whole or in part and the Interior Department over its administration of the War Minerals Act constitutes a regrettable situation. It is both working a hardship upon the men to whom the government has not fulfilled its pledges and causing severe criticism of the Interior Department by claimants. With the earnest hope that the present situation can and must be clarified, the Mining Congress has written the following letter:

February 9, 1921.

The Honorable
John Barton Payne,
Secretary of the Interior,
Washington, D. C.
My dear Mr. Secretary:

On August 10, 1920, in response to a request from this organization, you granted hearings to War Minerals claimants and their representatives. This organization appeared before you solely in the capacity of *amicus curiae*.

This meeting was called for the purpose of discussing some of the questions involved in the administration of the War Minerals Relief Bill and with particular reference to a measure (H. R. 13091) providing for an appeal from the decision of the War Minerals Relief Commission to the Court of Claims by those claimants who were dissatisfied with the determination made by your Department. This measure had passed the Senate, was reported favorably by the House Committee on Mines and Mining and was then upon the House Calendar for consideration.

After a most courteous consideration of the matter for more than two hours on your part during which it was stated that Congressional committees had been impressed with the thought that your Department had opposed this bill (H. R. 13091), you stated that your Department had taken no position with reference thereto, and that, in order to counteract this impression, you would write a letter to the Chairmen of the Committees of the House and Senate to the effect that your Department had not, and would not, undertake to influence Congress either for, or against, the proposed legislation.

You concluded your statement and the hearing with this query: "Is my promise in this satisfactory; is this what you gentlemen wish?" To which we replied that this was entirely satisfactory. We thereupon officially notified all claimants of the conference and your resultant promise.

Upon the convening of Congress in December your promised letter had not been written. Upon being requested for such a letter by the Chairman of the House Committee on Mines and Mining, on January 7, 1921, you wrote a letter which in no way can be construed to be a fulfillment of your promise to us. This organization is thereby placed in a most embarrassing position before its membership and we feel justified in an analysis of the reply which you did make to the Committee.

Your letter states:

> That 1203 claims for relief were filed and 1135 have been acted upon, and that your Department has followed the opinion of the Attorney General rendered July 1, 1919, in construction of the words "request or demand."

You did not refer to the fact that 812 of the 1135 cases acted upon have been entirely disallowed, nor did you refer to the fact that the Attorney General in his later opinion of October 26, 1920, addressed to you, calls the particular attention of your Department to the fact that his prior letter of July 1, 1919, did not state that the request must be "personal."

You did not state that more than 600 of these disallowed claims had been so disallowed by the War Minerals Relief Commission upon the ground that the Attorney General ruled that such request must be "personal." And that no reconsideration of these cases has been granted, notwithstanding the Attorney General's correction of your Department's ruling based on his opinion and his statement that the question of "request or demand" was a question of fact to be determined in each individual case.

You state that:

> As a matter of fact a large majority of the claimants are satisfied.

In view of the fact that more than 812 out of a total of 1203 claims have been entirely rejected, and that the files in your office are full of protests from the 300 remaining claimants to whom awards have been made in part, this statement gives to the word "majority" an unusual significance.

You state that:

> The bill in its present form would open up a large field and delay for years the conclusion of the litigation.

But, you do not refer to the fact that under the same right of appeal given to claimants under Section 2 of the same Act from decisions made by the Secretary of War, that out of a total of 7511 claims only nine appeals have been filed with the Court of Claims, of which eight are original cases appealed and the ninth the cases of a number of sub-contractors joined in the same issue.

We freely admit that doubtless some of these claims before you were properly rejected. But we insist that the 600 claimants, ruled out because of a repudiated interpretation of an opinion from the Attorney General are entitled to have their claims considered on their merits.

As it comes to us, the almost unanimous opinion of claimants is that they have not had a fair, impartial hearing.

If the writer may be permitted to express an opinion, it would be that it was extremely unfortunate that the dominating influence in your Commission should have assumed that he was charged with the partisan defense of Government's rights rather than that he was an arbiter to hear and determine the claims presented by the representatives of the claimants upon one side and upon the other side resisted by an attorney for the Government.

We insist that the first right of an American citizen—the right without which popular government must fail—is the right to have his grievance heard by an unbiased tribunal. It seems to us that any effort to prevent these dissatisfied claimants from being heard by an unbiased court is unbecoming the dignity of a just Commission. No judge, who renders an impartial verdict needs fear its review by a higher tribunal, and your letter opposing the granting of a right of appeal to an unbiased court gives room for suspicion that you are not altogether satisfied with the decisions which have been made by your War Minerals Relief Commission, and which you uphold.

This organization has no direct interest in any war minerals claimant, other than that which should impel you, not only that justice should be done, but that claimants shall feel that their rights have not been prejudiced either by a narrow construction of a remedial law or by the intense and bitter partisanship of a judge who undertakes to play the role of a "watch dog of the Treasury" by the technical avoidance of the payment of losses intended to be relieved by the statute.

FIRST: We cannot escape the feeling that the 600 claimants, who have been ruled out entirely by a repudiated misinterpretation of an opinion of the Attorney General, should have a fair hearing.

SECOND: That dissatisfied claimants who believe that the board has not been judicial in its rulings should have a right of appeal. And

THIRD: That the Executive Department of the Government should not attempt to influence the Legislative Department, especially when it has expressly promised not to do so.

Because of our long years of complete harmonious contact with the Department of the Interior in its administration of such problems as affect the mining industry, this is the first time that such a communication on the part of this organization to the Interior Department has been necessary and we therefore, regret all the more sincerely the humiliating duty of writing this letter.

Very respectfully yours,
THE AMERICAN MINING CONGRESS,
J. F. CALLBREATH,
Secretary.

MINT AND ASSAY OFFICE FUNDS RESTORED TO BILL

THE APPROPRIATION for the Carson City, Nevada, mint, which was stricken out of the Legislative Appropriation Bill by the House, was restored through the adoption of an amendment proposed by Senator Pittman of Nevada. It is considered probable that the appropriation bill when it passes will contain the amendment and that the mint at Carson City will continue in operation.

An amendment restoring the appropriation for the office of Surveyor General of South Dakota was secured by Senator Sterling. The senator maintained that the continuance of the office would be necessary for at least three years in order to complete surveys in the Black Hills, including 2,000 mining surveys.

The bill as it was finally reported to the Senate restored the appropriation for the Deadwood, S. D., assay office, and carried no appropriation for the New Orleans mint.

GEMS AND PRECIOUS STONES

UNITED STATES production of gems and precious stones in 1919 aggregated $111,763 as compared with $106,523 in 1918, the increase being about 50 per cent. Scarcity and high prices of labor operated to decrease production in many lines. The decline was especially marked in opal and likewise in topaz, none of the latter mineral being produced or reported from either Maine or California. Among others of which there was a decrease in production were beryl, corundum, diamond, chlorastrolite, copper-ore gems, datolite, feldspar, hematite, lapis lazuli, rhodonite, spodumene, and thomsonite.

MINES BUREAU OFFICIALS SPEAK.—Dorsey A. Lyon, chief metallurgist and supervisor of stations of the Bureau of Mines, was a guest recently at a meeting of the American Institute of Engineers of Spokane, Washington. He and A. W. Fahrenwald, who has been assigned to the Moscow experiment station, delivered addresses.

NATIONAL LEGISLATION

INTEREST in legislation before Congress during February has centered around the Packer's Bill to control the packing industry and the Calder Bill for the control of the coal industry.

It is understood that Senator Frelinghuysen intends to press for consideration in the next Congress his bill providing a Federal Coal Commissioner and seasonal rates on coal. Hearings on these bills were held before the sub-committee on Interstate Commerce last spring.

The House Committee on Mines and Mining reported the Robinson bill for the relief of war minerals claimants, which bill was passed by the Senate last session. Representative Baker of California introduced a bill in the House similar to the bill by Senator Robinson.

The Senate has passed the Smoot resolution calling on the Treasury Department for information as to the number of claims for refund, abatement, or credit against assessments of income and excess profits taxes for 1917, 1918, and 1919 for use in considering the Revenue Laws. The House Ways and Means Committee favorably reported the resolution passed last session which was introduced by Senator Harris of Georgia, calling on the Treasury Department for information as to income and profit taxes in 1918.

Representative Moores of Indiana introduced a bill to meet the proposed export tax of 12½ percent *ad valorem* on exports from Germany by levying a like tax on all imports into the United States from all nations participating in the laying of the export tax on German products.

The Treasury Department has endorsed the principle of the amendments to H. R. 14198, the Green Bill, which permits oil producers whose operating profits impounded until released by the Mineral Lands Leasing Law to prorate such receipts at their option over the several years of accumulation in arriving at income and excess profits taxes. Under the present law profits are held to be taxable as income for the year in which received. The Green Bill passed the House unanimously last May and is now before the Senate Finance Committee.

The Senate Committee on Interstate Commerce has reported the bill providing a substitute for Section 10 of the Clayton Act relating to interlocking directorates. The committee follows the Interstate Commerce Committee suggestion that in cases of transactions involving more than $100,000 a year between a corporation and its subsidiary the purchase must be made through competitive bidding.

The Public Lands Committees of both the House and the Senate have reported the bills for the leasing of boron deposits.

The bill which permits the cutting of timber for mining purposes by corporations organized in one state and conducting operations in another became a law without the approval or disapproval of the President within the ten-day time limit.

Senator Smoot of Utah has introduced a bill amending the leasing law by granting prospecting permits on known geologic structures of a producing oil or gas field prior to designation as an oil structure and discovery of oil or gas.

The appropriation bill covering the Department of Labor carried an appropriation of $250,000 for a national system of employment offices.

The increase under the Sundry Civil Appropriation Bill for mining experiment stations has resulted in the announcement that a station will be opened at Butte, Montana, if the House accepts the amendment and the bill is approved by the President.

The House Committee on Mines has decided to postpone until the new Congress consideration of the bill authorizing the Bureau of Mines to purchase coal and other fuel for the government service throughout the country.

Senator Ashurst of Arizona secured the adoption of an amendment to the Indian Appropriation Bill providing for the leasing of unallotted leasing lands in Arizona, California, Idaho, Montana, Nevada, New Mexico, Oregon, Washington, and Wyoming for the purpose of mining manganese, gypsum, limestone, and asbestos. The House has agreed to the Senate amendment.

A resume of the important bills introduced since January 20 follows:

COAL

H. R. 15976. Introduced by Mr. Rhodes; referred to the Committee on Mines and Mining. The bill authorizes the director of the Bureau of Mines to select and contract for all coal and other fuel required by any branch of the federal service at the seat of government or elsewhere within the United States. Any other branch of the federal service upon approval by the director of the Bureau of Mines may select and purchase its own coal. The director is authorized to investigate the coal and other fuel-burning equipment of the different branches of the federal service and their methods of handling, storing, and using and to recommend changes in equipment which will result in the greatest fuel economy. He is authorized to contract for the purchase of coal and other fuel for the different branches of the federal service in advance of the availability of appropriations for the payment thereof, but such contract shall not exceed the necessities of the current year. Different branches of the federal service under contract made by the director of the Bureau of Mines, during April, May, and June of each year are authorized to purchase such quantities of coal and fuel as it may be practicable to store at the points of consumption, payment therefor to be made within the fiscal year. Each branch of the service shall pay into the treasury of the United States to the credit of the director of the Bureau of Mines an amount to be fixed by him, but in no case to exceed 2 cents per ton, which money is to be expended for the employment of personal service in the District of Columbia and elsewhere and for all other expenses requisite for and incident to carrying out the provisions of the act. Not more than $100,000 may be expended in the enforcement of the act in any one year.

H. R. 15728. Introduced by Mr. Butler; referred to the Committee on Naval Affairs. (Requisitioning fuel for the navy). The bill provides that until June 30, 1922, the President is authorized to requisition fuel necessary to the maintenance of the navy and to requisition facilities for handling and storing such fuel; and he shall ascertain and pay a just compensation therefor. If the compensation so determined is not satisfactory to the person entitled to receive the same, 75 percent of the amount so determined by the President and shall be entitled to sue the United States to recover such further sum as will be just compensation for the property so requisitioned.

H. R. 15830. Introduced by Mr. Sinnott; referred to the Committee on Public Lands. (Alaska coal leases.) The bill amends the original Act providing for the leasing of coal lands in Alaska by providing that any unreserved coal lands and coal deposits shall be divided by the Secretary of the Interior into leasing blocks or tracts of forty acres each; but in no case exceeding 2,560 acres in any one leasing block or tract, which blocks shall be offered by the Secretary for leasing through advertisement, competitive bidding, or such

other methods as he may by general regulations adopt. It is provided that the majority of the stock of such corporations as lease the lands shall at all times be owned by citizens of the United States and that no railroad shall be permitted to acquire through lease or permit any coal or coal lands in excess of the area or quantity which may be required for its own use solely. It also provides that where prospecting or exploratory work is necessary to determine the existence of coal deposits, prospecting permits may be issued for a term of not to exceed four years under such rules and regulations as the department may prescribe.

S. 4864. Introduced by Mr. Smoot on January 17; referred to the Committee on Public Lands, from which committee it was reported on January 31, amended as follows: That where prospecting or exploratory work is necessary to determine the existence or workability of coal deposits in any unclaimed, undeveloped area in Alaska, the Secretary of the Interior may issue prospecting permits for a term of not to exceed four years, under such rules and regulations and conditions as to development as he may prescribe, to applicants qualified under this act, for not to exceed two thousand five hundred and sixty acres, and if within the time specified in said permit the permittee shows to the Secretary of the Interior that the land be entitled to a lease under the act for all or any part of the land in his permit. This bill was reviewed in the February issue of the MINING CONGRESS JOURNAL. The original bill was entirely crossed out by the committee considering it and the above recommendations were made for amendment to Section 3 of the Leasing Bill.

REVENUE

S. 5007. Introduced by Mr. Gore; referred to the Committee on Finance. Amending sub-division B of section 250 of the Revenue Act to provide that where additional taxes on income and profits accruing prior to January 1, 1920, are assessed or determined because of understatement without intent to defraud, and it is shown to the satisfaction of the commissioner that the taxpayer is without adequate means to pay such additional taxes immediately and is unable to borrow the amount required to pay such taxes at reasonable rates of interest, the commissioner may accept payment of such additional taxes in installments fixed with respect to time and amount at his discretion but in no case to exceed twelve months from the date upon which the taxpayer is notified that such additional taxes are due. Except in cases in which a higher rate of interest is now imposed by law, the amount of taxes so deferred shall bear interest at the rate of two-thirds of 1 percent a month from the date upon which the taxpayer is so notified, to be paid at each deferred installment date, in addition to the amount of tax then payable. The commissioner, with the approval of the Secretary, is authorized to make all needful rules and regulations for the enforcement of the provisions of the act.

H. R. 16026. Introduced by Mr. Moores of Indiana; referred to the Committee on Ways and Means. The bill provides that whereas an agreement has been concluded between the Allied Powers to exact from Germany an export tax of 12½ percent *ad valorem* on all exports from Germany; and whereas the effect of this tax will be to compel American importers and consumers to pay a tax in dollars, that immediately upon the going into effect of any tax on German exports, payable in the money of the country to which the exports are sent, the President shall issue a proclamation, announcing the fact, and setting forth the names of the participating nations. An additional customs surtax of twelve and one-half percent *ad valorem* shall be levied on all articles produced, grown, or manufactured, wholly or in part, in any participating nation; all articles imported into the United States in ships flying the flag of any participating nation; that a participating nation may withdraw from participation by consenting to repeal of the German exports tax, waiving all right to all or any part of the proceeds of the tax, levying a tax of twelve and one-half percent *ad valorem* on all imports from other participating nations, and on all goods imported under the flag of a participating nation. Section 5 of the act provides that when a participating nation has withdrawn from participation the President shall issue a proclamation to that effect, and thereafter the customs surtax prescribed in section 3 of this act shall not apply to that nation, and that all laws, and all treaties, or parts of treaties, in conflict with this act are repealed.

REVENUE

S. 4917. Introduced by Mr. Spencer; referred to the Committee on Finance. (Amending Revenue Act.) This bill amends the Revenue Act of 1918 by inserting a new sub-division in section 234, which reads as follows: Contributions or gifts made within the taxable year to corporations organized and operated exclusively for religious, charitable, scientific, or educational purposes, or for the prevention of cruelty to children or animals, no part of the net earnings of which inures to the benefit of any private stockholder or individual, or to the special fund for vocational rehabilitation authorized by section 7 of the Vocational Rehabilitation Act, to an amount not in excess of 15 percent of the taxpayer's net income as computed without the benefit of this paragraph. Such contributions or gifts shall be allowable as deductions only if verified under rules and regulations prescribed by the commissioner, with the approval of the Secretary. This act shall take effect immediately upon its passage.

S. J. Res. 146. This bill was introduced in the House of Representatives on June 5 and referred to the Committee on Ways and Means. On January 29 it was referred to the House calendar and order to be printed. The bill had previously passed the Senate on June 2, 1920, and provides that the Secretary of the Treasury be directed to furnish the Senate the following information to be secured from the income and profits tax returns for the taxable year 1918 of all corporations which have earned in excess of 25 percent on their capital stock: Capital Stock; Invested Capital; Net Income; Percent of Total Tax to Net Income; Net Income After Deducting Tax, etc.

TARIFF

H. R. 16101 (*Barytes*). Introduced by Mr. Rhodes; referred to the Committee on Ways and Means. This bill imposes on all crude barytes ore a duty of three-fourth of 1 cent per pound; on all ground baytes or barium sulphate, a duty of 1¼ cents per pound; on all barium sulphide, a duty of 1½ cents per pound; on all barium carbonate, a duty of 2 cents per pound; on barium binoxide, a duty of 2 cents per pound; on precipitated barium sulphate, a duty of 2 cents per pound; on barium chloride, a duty of 2½ cents per pound; on all lithopone, a duty of 2½ cents per pound; on all barium nitrate, a duty of 5 cents per pound; on all barium peroxide, a duty of 8 cents per pound; and on each and every other barium compound, and barium chemical, a duty of 25 percent *ad valorem*.

H. R. 16102.—*Cobalt*—Introduced by Mr. Rhodes; referred to the Committee on Ways and Means. (Cobalt.) The bill provides for a rate of tariff duty upon cobalt or oxide of cobalt of 75 cents per pound.

H. R. 16105—*Lead*—Introduced by Mr. Rhodes; referred to the Committee on Ways and Means. This bill imposes upon all lead contained in lead-bearing ores a duty of 1½ cents per pound; on all lead dross, lead bullion or base bullion, lead in pigs and bars, old refuse lead run into blocks and bars, old scrap lead fit only to be remanufactured, lead in sheets, pipe, shot glazier's lead, lead wire, pencil lead not in wood or other material, 2 cents per pound; on all lead pigments including litharge, orange mineral, red lead, white lead, and all pigments containing lead, dry or in pulp, and ground or mixed with oil or water, acetate of white lead, nitrate of lead, acetate of brown, gray, or yellow lead, 5 cents per pound; and all other lead products or compounds not specifically provided for in the Act, 40 percent *ad valorem*. The bill expressly repeals all existing laws for fixing the duty upon lead.

POTASH

S. Res. 435. Introduced by Mr. Fletcher, which was on January 26 considered and agreed to. It provides that the Secretary of Agriculture is authorized and directed to ascertain as nearly as possible, and to report to the Senate as soon as practicalbe, the following: The amount of commercial potash, nitrogen and phosphoric acid available for fertilizer purposes and the price of each of these articles as compared with the prices for 1913, as shown by data in the office or that can be secured without material expense; and to furnish any suggestions as to relieving the situation in case the amount of any or all of these is insuffiicient or the price prohibitive, and to report what investigations were made and with what results, mentioned in Senate Document 262, Sixty-Fourth Congress, first session.

WAR MINERALS

S. 4900. Introduced by Mr. Robinson; referred to the Committee on Mines and Mining. Reported by Mr. Walsh with amendment. The bill provides that Section 5 of the Act approved March 2, 1919, be amended by adding the following: Provided that this section shall be liberally interpreted, and that all claimants who in response to any personal, written, or published request or demand from any of the government agencies mentioned in said act in good faith expended money in producing or preparing to produce any of the ores or minerals named therein and have heretofore filed their claims within the time and in the manner prescribed by the act, shall be reimbursed such net losses as they may have been found to have incurred and are in justice and equity entitled to from the appropriation in the act, and that the unexpended portion of the appropriation carried in the act be continued available for the purposes named above until all claims shall be finally settled or disposed of.

ANTI TRUST

H. R. 16060. Introduced by Mr. Esch; referred to the Committee on Interstate and Foreign Commerce. Amending the Interstate Commerce Act by adding a new section to be known as 20-B, which provides that after sixty days from passage of the bill no carrier shall have any dealings in materials, supplies, or other articles of commerce, or shall make any contracts or have any contracts made for construction or maintenance

of any kind, to the amount of more than $100,000 in the aggregate in any calendar year, with another corporation, firm, partnership, or association not a common carrier, railroad company, terminal company, or joint facility company that is subject to Section 20 of the Interstate Commerce Act when carrier shall have as a director, president, manager, purchasing or selling officer, or agent in the transaction any person who is at the same time a director, manager, purchasing or selling officer, or agent in the transaction of, or who has any substantial interest in, such other corporation, firm, etc., unless such dealings be with the bidder whose bid is the most favorable. Every carrier having any such contracts required to be made by competitive bidding shall, within thirty days after making the same, file a full and detailed statement of the transaction showing the manner of the competitive bidding, who were the bidders, their names and addresses, and the names and addresses of the directors and officers of the corporations and the members of the firms or partnerships bidding. A fine of $25,000 is imposed for violation by a carrier and a fine of $5,000, one year in jail or both is imposed for any violation by any director, agent, manager or officer, who shall have knowingly voted for or directed the act constituting such a violation.

H. R. 15126. Introduced by Mr. Esch. This bill was introduced December 15 and referred to the Committee on Interstate and Foreign Commerce from which committee it was reported on December 30 and referred to the Select Committee on Water Power. This committee on February 10 reported the bill with amendments. The bill as it now goes to the House provides that the original bill be amended by giving the commission power to appoint an executive secretary who shall receive a salary of $7,500 per annum. The commission in the performance of its work shall utilize so far as is practicable the field offices and personnel of the Departments of War, Interior, and Agriculture. It appropriates $100,000 to carry out the provisions of the act.

INTERSTATE COMMERCE COMMISSION

H. R. 15875. Introduced by Mr. McLaughlin; referred to the Committee on Judiciary. The bill provides that hereafter all meetings of the Federal Reserve Board and Interstate Commerce Commission, or any division, committee, or subcommittee of either such body, shall be open to the public and that all records, books, papers, documents, and correspondence of either body shall be open to public inspection.

INVESTIGATIONS

H. Res. 651. Introduced by Mr. Jones of Texas; referred to the Committee on Rules. This bill provides for an investigation of the affairs of the International Harvester Company with a view to determining the cause for the advance in price of their products and to ascertain what is a reasonable price for such machinery.

S. Res. 436. Introduced by Mr. Harris, which authorizes the Federal Trade Commission to inquire into the price of print paper during the last year and ascertain whether or not the newspapers of the United States are being subjected to unfair practices in the sale of print paper.

LOBBYING

H. R. 15820. Introduced by Mr. Welty; referred to the Committee on Judiciary. This bill is substantially the same as the bills reviewed in the February issue of the MINING CONGRESS JOURNAL introduced by Mr. Curtid and Mr. Overman. It prohibits lobbying and requires proper registration of those whs desire to appear before committees in regard to legislation.

INTERNATIONAL HIGH COMMISSION

S. 4906. Introduced by Mr. Lodge; referred to the Committee on Foreign Relations. Amends the original act by providing that there be established the United States Section of the Inter-American High Commission, consisting of the Secretary of the Treasury and eight other persons named by the President, whom with the exception of the Secretary of the Treasury shall serve for five years without compensation. The United States Section shall cooperate with the other sections of the Inter-American High Commission in bringing about between the republics of North, Central, and South America and the West Indies a substantial uniformity in commercial law and practice, and in fiscal and administrative regulations, particularly as concerns bills of exchange, checks, commercial paper, and bills of lading; the classification of merchandise; rates of postage; facilities of communication and transportation; the establishment of a standard of value and the stabilization of exchange, etc. It shall not, however, be concerned with the promotion of trade, or with matters essentially diplomatic or political in character. The Secretary and Assistant Secretary of this section shall receive salaries of $5,000 per annum.

DISARMAMENT

S. J. Res. 225. Introduced by Mr. Borah; referred to the Committee on Foreign Relations. This resolution authorizes the President to advise the governments of Great Britain and Japan that the United States is ready to take up with them the question of disarmament. The bill gives the President the authority to advise these nations that our government will, without waiting upon the government of any other nation, take up the question of naval disarmament with a view of promptly entering into a treaty by which the naval building programs of each of these governments shall be substantially reduced annually during the next five years.

HOUSE PAYS TRIBUTE TO MEMORY OF CONGRESSMAN GARLAND

SERVICES in memory of Congressman Mahlon M. Garland of Pennsylvania, chairman of the House Committee on Mines and Mining, were held in the House on February 6. Memorial addresses were made by Congressmen Kelly, Crago, Walters, Nolan, Burke, Dihlman, Campbell, Shreve, Watson and Wingo.

MINERAL EXAMINERS NEEDED

CIVIL SERVICE examinations for the position of mineral examiner will be held March 24 at various places in all the different states. The positions to be filled call for the performance of duties at the General Land Office in Washington and also in the field. Salaries will range from $1,500 to $1,620 a year. It is desired that applicants possess actual practical experience either in the work of a mining engineer or in the investigation of mineral or oil deposits.

COUNCIL OF DEFENSE BEGINS TO GO OUT OF BUSINESS

AS A RESULT of the refusal of both House and Senate to make an appropriation for its maintenance, the Council of National Defense will probably go out of existence at the beginning of the next fiscal year on July 1. The House first refused an appropriation of $75,000 and the Senate later did the same thing, the vote being 41 to 21.

Secretary Baker, chairman of the council, appeared before the Senate Committee on Appropriations and made a plea for the appriation. He said the council carried on a study of the copper and steel situation as it affected the War Department, and that in case of a sudden emergency the council would know which way to turn. Senators Warren of Wyoming and Overman of North Carolina also favored continuance of the council for the same reason as advanced by Secretary Baker. Another argument advanced in favor of the appropriation was that it kept the records of various other government agencies which had been abolished, but this argument was met by the statement that these records had in reality been turned over to the regular departments of the government. As an illustration, it was shown that all documents of the Railroad Administration and both the Anthracite and Bituminous Coal commissions had been given to the Bureau of Mines, and that the council was no longer concerned in them. Senators McKellar of Tennessee and Sterling of South Dakota led the fight against any appropriation for the council.

Late in February Emmons K. Ellsworth, acting director of the council, and Susan H. Walker, editor of the "Daily Information Digest," issued a statement that "Because of this action, it is considered that the interest of the government will be best served by discontinuing at once the research work of the council." The Digest, which consisted of a daily mimeographed announcement of the titles of pamphlets, booklets and press bulletins issued by other government departments, was discontinued at once.

ECONOMY IN EXPLOSIVES HELD TO BE SAFETY FACTOR

CLOSED MAGAZINES have resulted in the saving of money to those mines which have tried them, according to information sent in to the Bureau of Mines. Some of the operators claim that the supervision of the placing of holes has resulted in the saving of 20 to 25 per cent of all explosives used, a saving which if applied to all of the mines of one large western corporation would amount to nearly $300,000 per year.

The practice of having open magazines at all levels where miners are permitted to secure explosives at any time in such quantities as they desire is held by the Bureau of Mines to be both dangerous and costly. The Bureau favors the use of closed magazines exclusively, with close supervision over the power of distribution.

REPORTS OF BUREAU OF MINES AND GEOLOGICAL SURVEY

"Lead in 1918," by C. E. Siebenthal, Geological Survey.

"Sand and Gravel in 1919," by R. W. Stone, Geological Survey.

"State Mining Laws on the Use of Electricity in and about Coal Mines," by L. C. Ilsley, Bureau of Mines.

"Stenches for Detecting Leakage of Blue Water Gas and Natural Gas," by S. H. Katz and V. C. Allison, Bureau of Mines.

"Storage Battery Locomotives," preliminary investigations, with specifications, laboratory tests and permissible schedule; by L. C. Ilsley and H. B. Brunot, Bureau of Mines.

"Structure in Paleozoic Bituminous Coals," Bulletin No. 117, by Reinhardt Thiessen, Bureau of Mines.

"Causes and Prevention of Fires and Explosions in Bituminous Coal Mines," Miners' Circular No. 27, by Edward Steidle, Bureau of Mines. Contains 117 illustrations each with explanatory paragraph.

"Consumption of Reagents Used in Flotation," by Thomas Varley, metallurgist, U. S. Bureau of Mines.

"Tests of Carbon Monoxide Detector in Mines," by D. Harrington and B. W. Dyer, mining engineers, Bureau of Mines.

"Tests of Miners' Flame Safety Lamps in Gaseous, Coal-Dust Laden Atmospheres;" by L. C. Ilsley and A. B. Hooker, Bureau of Mines.

"Structure in Bituminous Coals," Serial No. 2196, by Reinhardt Thiessen, Bureau of Mines.

World Atlas of Commercial Geology, Part 1, on distribution of Mineral Production; United States Geological Survey An artistic volume containing seventy-two full page maps, as well as information suggested by the title.

TWO MILLION TONS OF GLASS SAND were used in the United States in 1919. The Geological Survey in a recent bulletin pointed out that sand forms from 60 to 75 per cent of all glass manufactured. About 500,000 tons of furnace sand, which is highly refractory silica, is used in the country annually.

ALCOHOL EXTRACTION FROM COAL.—Tests at the Bureau of Standards show that alcohol can be extracted from coal by a carbonizing process. It is estimated that a ton of coal will produce about two gallons of pure ethyl alcohol, the method of carbonizing consisting of reducing the coal to coke and then recovering the alcohol and its derivatives from the gas.

STATES AID SHALE WORK.—Colorado and Utah have contributed $20,000 for oil shale investigations by the Bureau of Mines, Dr. F. G. Cottrell stated before the House Committee on appropriations.

BUREAU OF MINES TURNOVER.—Out of 401 employes of the Bureau of Mines, 190 left the service. Of the 119 technical men, 66 resigned. Most of the technical changes were in the petroleum division.

LITTLE TIN IN NEW MEXICO

AN ADVERSE REPORT has been made by J. M. Hill, of the Geological Survey, upon the tin resources of the field in New Mexico south of Magdalena and Datil, along Taylor Creek at the headquarters of the East Gila River. Stream tin was found there in 1918 and tin prospects were located in 1919. Mr. Hill concluded that, "On the whole, the district does not look promising as a possible producer of this much needed metal."

BLACK SMOKE INVESTIGATION

AT THE INTERMOUNTAIN STATION, Salt Lake City, the municipal government and the Bureau of Mines are cooperating in investigating the abatement of black smoke. The bureau has transferred $3,000 from its smoke abatement allotment to defray expenses of the station's work.

MONTANA TOWNSITES TO BE SOLD.—All unsold lands within the government townsites of Huntley and Osborn, Mont., will be offered at public sale April 16. Huntley is the junction point of the N. P. and the Burlington railroads and Osborn is bisected by the former.

Gas Charges in National Park.—The National Park Service of the Interior Department closely watches gasoline prices in the government national parks, according to statements made by Superintendent Mather before the House Committee on Appropriations. Mr. Mather said the rates in general were reasonable and no higher than they should be considering the distance of the parks from the center of travel. Director Mather recommended an electric lighting plant for the Glacier National Park to be operated by gasoline.

New York Assay Office Repairs.—Repairs to the New York Assay Building, damaged by the Wall Street explosion last September, will cost $46,214.

New Superpower Advisor.—Henry C. Perkins, mining engineer, Washington, D. C., has been appointed a member of the Superpower Survey Advisory Board. He has attended all meetings since January 1.

Oil Inspections Completed.—K. C. Heald, who during the last four months of 1920 inspected oil fields in Montana and Wyoming, finished on the Rock Creek oil field and made miscellaneous examinations for the land classification board. He has returned to the Washington Office of the Geological Survey.

Gladys K. Drach has been appointed mineral geographic aid in the Geological Survey. She has been assigned to the oil and gas development record department.

T. C. Hopkins, of Syracuse University, is doing special work for the foreign mineral reserves section of the Geological Survey.

Osage Mineral Extension.—Extension of the Osage mineral lease until 1956 has been recommended by oil lease holders of the reservation in hearings before the Senate Indian Committee.

Unemployment Statistics.—An organization which has made a summary of the unemployment situation estimates that of the 2,325,000 workers out of employment, 150,000 are steel and iron workers and 50,000 metal mine workers.

OIL AND GAS PERMITS

The following permits to prospect for oil and gas have been issued by the General Land Office:

California. El Centro District: W. F. Gillett, 2,560 acres; Ira Feldman, 2,560 acres; Frank M. Silverthorne, 640 acres; Lewis C. King, 2,560 acres; Emma Grieve and Blanche Covert, 1,280 acres; Frank Silverthorn, 640 acres; I. N. Vining, 2 permits, 640 acres. Independence District: Howard Edgar, 2,560 acres; Lee Osmonson, 2,528 acres. Los Angeles District: Oliver Rogers, Richard S. Corey, Frank R. Miller, 2,000 acres; Seaboard Petroleum Co., 480 acres; Roy E. Kitching, 2,545 acres; J. N. Metcalf, 120 acres; L. B. Ehrlich, 80 acres; H. C. Peters, 320 acres. San Francisco District: Adolph Gunzendorfer, 2,560 acres; Samuel H. Williams, 2,560 acres; Frank J. Corr, 920 acres; Adolph Gunzendorfer, 2,507 acres; Sven H. Svenson, 2,320 acres. Visalia District: John F. Dockweiler, 405 acres; Eva C. Slover, 528 acres; J. V. McNeil, 521 acres; Earl S. Shaw, 2,545 acres; Ed. Bensen, 640 acres; Ernest Schroeter, 183 acres; Floyd E. Green, 40 acres; W. E. Higgins, 80 acres; G. L. Warson, 2,250 acres; M. F. Luton, 120 acres; R. H. Smith, 1,760 acres; E. B. Miller, 320 acres; Amos W. Elliott, 1,934 acres; The Hogan Realty Co., 160 acres.

Idaho. Hailey District: Lemki Valley Oil and Mineral Co., 2,559 acres; Sunrise Oil and Gas Co., 80 acres; A. D. Ash and E. D. Ellsworth, 840 acres; F. J. Marshall, 80 acres; West Coast Oil and Gas Co., 280 acres.

Montana. Great Falls District: Marshall I. Blakemore, 118 acres; Andrew J. King, 1,544 acres; Rudolph H. Jordan and Nate Wortheim, 321 acres. Glasgow District: J. R. Bryan, 1,160 acres; C. C. Calhoun, 240 acres; Saml. B. Hill, 1,340 acres; Alfred M. Fruh, 2,080 acres; Wm. D. Keene, 480 acres; Frank B. Lambert, 320 acres. Lewiston District: Matthew W. Wildeschutz, 320 acres; Frank L. Bigler, 80 acres. Miles City District: Ernest T. Fenton, 2,541 acres; Claude A. Gunnett and John W. Dorrington, 160 acres; Leslie McGraw, 120 acres; Corwin T. Lakin, 280 acres.

Nevada. Carson City District: Waseuk Oil and Gas Co., 2,080 acres; Ernest Cole, 1,280 acres; John P. McCann, 2,560 acres; Arthur G. Hatch, 480 acres; Wheeler Oil Syndicate, 1,600 acres; Diamond Oil Co., 320 acres; Thos. W. Medley, 2,560 acres; Wassak Oil and Gas Co., 2,080 acres; Wheeler Oil Syndicate, 1,600 acres; Nevada National Oil Co., 160 acres. Elko District: Bull Run Oil and Gas Co., 2,560 acres; Orville B. Barnes, 2,560 acres; G. M. White, 2,557 acres; Herbert Freston, 2,560 acres.

New Mexico. Roswell District: E. A. Cahoon, 2,560 acres; Leigh W. Crouse, 2,560 acres; O. R. Tanner, 1,280 acres. Santa Fe District: Ralph P. Kellog, 2,558 acres; Ralph P. Kellog, 2,558 acres; C. B. Weeks, 640 acres.

South Dakota. Rapid City District: Horace J. Thomas, 2,551 acres.

Utah. Salt Lake City District: Agnes D. Leland, 2,400 acres; Knox Patterson, 917 acres; E. H. Mortimer, 2,560 acres; J. L. Timmons, 2,560 acres; Eliz. McHatton, 2,560 acres; Chas. Youle, 2,499 acres; C. A. Ireland, 2,400 acres.

Wyoming. Cheyenne District: H. W. Eveleigh, 2,237 acres; A. E. Lamberson, 2,560 acres; Albert E. Stirett, 2,200 acres; L. C. Larsen, 960 acres; E. G. Guyle, 1,280 acres. Evanston District: R. H. Bitner, 1,360 acres. Lander District: Will C. Metz, 1,280 acres; Green Consl. Co., 1,099 acres; J. W. Rosseau, 261 acres. Newcastle District: Herbert H. Brush, 1,658 acres; Geo. C. Coking, 240 acres; D. Bailey, 320 acres; Davis R. Shakleford, 1,273 acres; H. H. Burch, 800 acres.

WAR LABOR AGREEMENTS BEARING HEAVILY UPON THE RAILROADS

By C. H. Farrell

THE RAILROAD LABOR BOARD has for the past month been listening to various arguments of the railway executives and the brotherhoods for the purpose of determining what action shall be taken regarding continuation of the national agreements which were entered into during federal control by the brotherhoods and the Director General of railroads. At the present time the brotherhoods are pressing for a postponement of the hearings in the hope that some further conferences can be had which will clear up the situation to some extent, but the carriers are quite insistent that the hearings be concluded promptly and a decision reached by the board because the spokesmen say that the railroads of this country are face to face, or will be, with insolvency if something isn't done promptly to relieve them.

This much is certain—the carriers today are operating under the highest basis of rates ever known in the history of the country, and according to their own figures they are earning only about half of the six percent which Congress has said they are entitled to. There can be no further increase in rates—in fact, it is quite evident that there must soon be a reduction. Commodities of all kinds are falling in price on every hand, and the decreased tonnage handled by the roads during the last few months is a marked indication that the traffic will not bear even the present rates. There is only one hope, and that is in increased efficiency of operation. The carriers state that if the national agreements are abrogated or even amended so as to permit them to deal with their employes by railroads or by sections, as the case may be, a saving in operating expenses of $300,000,000 can be effected without making any general reduction in wages. The objections to the national agreements put forth by the carriers are that they make wages and working conditions identical throughout the United States regardless of innumerable differences in local conditions, and that their operation puts upon the railroads hundreds of millions of dollars of operating expense, much of it for labor never performed. The brotherhoods contend that the desire to abrogate the agreements is merely a scheme to chop up the unions into many little parts for the purpose of totally destroying them.

As an instance of the waste brought about by the national agreements, General Atterbury, for the carriers, shows that in 1917, prior to federal control, the railways employed 302,828 shop men and that in 1920, with only a slight increase in the number of locomotives and cars to be maintained, the number of shop employes had jumped to 443,774, an increase of 140,946, or 47 percent, which brought about a corresponding increase in the total wages paid of 180 percent. The increase in the number of clerks in 1920 over 1917 was 29 percent and the increase in wages 112 percent. The number of maintenance of way employes during this period increased 126,000, and their wages jumped $256,000,000, or 112 percent. This great increase in the number of employes is said to be due to the rules and working conditions which destroyed the efficiency of labor, reduced the output per man, and rendered it necessary to employ a much larger force. The total increase in the number of employes of the railroads under government control was 261,000, and the carriers stressed the fact that out of this increase 232,563 more men were employed as clerks, shop men, and maintenance of way employes, all of whom are represented by the three principal national agreements.

Some of the instances cited by the railroads as to payment for labor never performed read a bit like fiction, as, for example, the Pere Marquette Railway was compelled to pay $9,364 in back pay to four employes because their titles under these agreements were changed, although the work remained the same. An employe of the Virginian Railway was laid off with other employes because there was no work for him to do, and when he became entitled, under his seniority rights, to be again employed, he received back pay and overtime in the amount of $1,000. On the El Paso & Southwestern a train was delayed one hour and thirty minutes, and an employe was paid five hours' time for making repairs to a window which took thirty minutes, when a foreman who was present could have done the work without delaying the train. Four car men on the same road were sent out on the line to do a piece of work that took four hours and thirty-three minutes—the company was compelled to pay these men for one hundred and twelve hours' work. On the Norfolk & Western five machinists were sent to an outlying point where they actually worked eight hours per day for three days—each of them had to be paid straight time for the twenty-four hours they did work and time and one-half for the seventy-two hours they didn't work. The shop crafts agreement provides that when employes are required to check in and out on their own time they will be paid one hour extra at the close of each week, no matter how few hours they may have worked. This rule, for the first six months of 1920, cost the railroads $6,500,000. A machinist was paid sixteen and one-half hours' wages for work performed within eight hours, because of the rule requiring that for each call to work the employe shall be allowed five hours' pay even if he works only ten minutes on the jobs for which he is called.

Another complaint of the carriers is against piece work, which it is said decreased efficiency greatly, and instances are cited to prove this statement. The Chesapeake & Ohio reports that it took a man 1.47 hours longer to paint a locomotive under the hourly system of pay than it did when he was paid by the amount of work turned out, and that the time required for a man to paint a freight car increased 27.89 hours when the man was paid by the hour instead of by the job. The average number of wheels bored per hour at the Huntington Shops decreased 47 percent when the change was made from the piece work basis to the hourly basis. There are reports from other carriers given, and the summary shows that the abolition of piece work basis of pay decreased average output 26 percent.

IRON ORE RATES.—The Lake Superior Iron Ore Association, through Jean Paul Muller, its attorney, has filed on behalf of thirty-six mining companies, a protest asking for the suspension of various tariffs which seek to increase the rates on iron ore from mines in Michigan and Wisconsin to Ashland, Wisconsin, and Marquette and Escanaba, Michigan. This protest shows that, effective February 25, an increase is proposed in the line haul rate of ten cents and in the dock handling charge of five cents, for the Chicago & North Western, Chicago, Milwaukee & St. Paul, and Minneapolis, St. Paul & Sault Ste. Marie. The line haul increase is five cents and the dock handling charge five cents for The Duluth, South Shore & Atlantic, Munising, Marquette & Southeastern, and Lake Superior & Ishpeming Railways. The protest reviews the iron ore rate situation, and calls attention to the fact that the rates at the present time are higher than they should be and are already before the Interstate Commerce Commission for determination in a formal case. It concludes with a request that the rates be suspended and the whole matter assigned for hearing. Protests have also been filed for the Jones & Laughlin Company, the Interstate Iron Company, Steel & Tube Company of America and McKinney Steel Company.

COPPER RATES.—In considering complaints filed by the Anaconda Copper Mining Company, the International Smelting Company and the American Smelting & Refining Company, the Interstate Commerce Commission on June 2 ordered the carriers concerned to establish rates on smelter products, including pig lead and lead bullion, in carloads, from points in the States of Washington and Idaho to destinations on and east of the Missouri and Mississippi Rivers, which would not exceed rates contemporaneously maintained from points in the States of Montana, Utah and Arizona, to destinations on and east of the Missouri and Mississippi Rivers. In compliance with a petition filed by the defendants the commission has now reopened this matter for further hearing and vacated and set aside the operation of its order.

TONNAGE STATISTICS.—A statement just released by the Interstate Commerce Commission, showing a summary of freight commodity statistics of all the large roads in the country for the quarter ended September 30, is illuminating as to the amount of tonnage which products of mines furnish to the carriers. During this period there were 17,672,592 carloads of revenue freight carried by the railroads, of which 7,205,790, or approximately 47.8 percent, were the products of mines. Translated into tons we find that out of 628,045,169 tons of 2,000 pounds each 346,040,830, or approximately 55 percent, were the products of mines. These figures include both anthracite and bituminous coal, coke, iron ore, other ores and concentrates, base bullion and matte, crude petroleum, asphaltum, salt, clay, gravel, sand, stone and miscellaneous products of mines, but do not include refined petroleum and its products, pig iron, nor manufactured iron articles. The nearest class of freight to this tonnage shown by the mines is under the head of miscellaneous, with 5,430,733 carloads for the period, and next in line comes products of agriculture, with 2,215,180 carloads.

CAR LOADING.—The drive instituted by the railway executives, when the lines were returned to private control, for a heavier loading per car has already shown results. During November of last year the average load carried in each loaded freight car was 30½ tons, a new record exceeding the previous record by two-fifths of a ton and exceeding the preceding month, which had been heavy, by one-half ton. This was done in spite of decreased traffic, and is an indication of increased efficiency. In November, 1918, the loading was one ton less, and in 1919 it was 4.3 tons less. In July and August, 1918, an average of 30.1 tons was reached, but the 30-ton mark was not again passed until September of that year. The carriers estimate that an increase of one ton in the average load per freight car is equivalent to the addition of approximately 60,000 cars, and by using these figures we arrive at the fact that there were 258,000 more freight cars available because of increased loading in November, 1920, than in November, 1919.

INTERSTATE VERSUS INTRASTATE RATES.—The Interstate Commerce Commission continues to hand down decisions in the various investigations started for the purpose of ascertaining whether rates required by state authority are prejudicial and discriminatory against interstate commerce, and the finding in every instance has been that where the rates intrastate are lower than the rates prescribed by the commission in the recent advanced rate case, they, the intrastate rates, are unduly preferential and prejudicial and unjustly discriminatory against interstate commerce. Several of these decisions have already found their way into court, and so far the courts have been universal in upholding the decisions of the commission, the latest instance being in Illinois, where the United States District Court enjoined the state from interfering with the orders of the Interstate Commerce Commission. The whole matter will ultimately come to the Supreme Court, and at the present time it looks as if the case brought by the Wisconsin authorities will be the first one to be argued and that fifteen or twenty of the other states will join with the attorney general of Wisconsin in presenting this matter. The feeling is quite general that the Interstate Commerce Commission will be upheld, and it is quite probable that the drive will then center on Congress for an amendment to the Interstate Commerce Act.

DETENTION OF CARS.—For the purpose of ascertaining what rules should be adopted for the reconsignment of freight the commission has required all carriers to submit, on a special form, a statement showing by commodity the number of cars held beyond the free time for reconsignment, for which the shipper was responsible, at principal reconsigning points and in large cities. Information as to the number of days each car was held, the classes of freight involved, the number of order notify shipments and similar data, is also requested.

COST AND TONNAGE OF RAILROAD FUEL IN 1920.—In connection with its investigation of the cost of railroad fuel in 1920, which the commission is making pursuant to a resolution of the Senate, a questionnaire has been sent to all carriers asking for detailed information as to the cost and quantity of fuel purchased in 1920 and 1919. The commission requires this information (1) as to bituminous coal and (2) as to other fuel, and details showing whether the coal was contract coal or made on spot purchases, the invoice price, and the total cost at the mine.

CONSTRUCTION AND REPAIR OF RAILWAY EQUIPMENT.—The carriers have, from time to time, issued statements in reply to the brotherhoods' charges now being investigated by the Interstate Commerce Commission that railway equipment was being repaired in outside shops at a cost greatly in excess of what similar repairs would come to in the shops of the carriers, with the inference that some of the officers or directors of the railways were personally interested in such shops. For instance, the Atlantic Coast Line has had practically twenty locomotives rebuilt by the Baldwin Locomotive Works, the contract for the first ten being made during federal control with the full concurrence of the regional director in charge. As to these locomotives, the Coast Line officials say that the efficiency of their shops was decreased not less than 30 percent during federal control by the abandonment of piece work, the forced obligations of the closed shop, and by successive federal interpretations of the rules and regulations governing shop control and operations. These conditions brought about the necessity for this outside repair work, and the further statement is made that no director nor officer of the Coast Line has any direct or indirect interest in the Baldwin Locomotive Works. When the government took over this line there were 112 engines out of service requiring repairs, and when federal control terminated there were 202. The Chicago, Milwaukee & St. Paul Railway reports that it had work done at the Baldwin Works on twenty locomotives and that there was involved a class of work which could not be done as economically in the home shops.

SOME EFFECTS OF NATIONAL AGREEMENTS AND GOVERNMENT OPERATIONS

Four employes paid $9,364 in back wages because titles of their jobs are changed.

Employe laid off because of lack of work receives, when re-employed, $1,000 for back pay and overtime.

Train delayed an hour and a half, and workman paid for five hours time, for thirty-minute job. Four men engaged four hours and thirty-three minutes collect for one-hundred and twenty-five hours. Five machinists who work eight hours each for three days are paid straight time for the twenty-four hours they work and time and one-half for the seventy-two hours they don't work.

Agreement that certain employes who check in and out on their own time be paid for one hour extra each week cost the railroads $6,500,000 in six months.

Substitution of straight time system for piece work makes a man take 1.47 hours longer to paint an engine and 27.89 hours longer to paint a freight car, and in many shops cuts output 26 per cent.

Number of shop employes jumps 47 per cent and amount of their wages 180 per cent.

Number of clerks increases 29 per cent and their wages 112 per cent.

Number of maintenance of way employes increases 126,000 and their wages 112 per cent, or $256,000,000.

GOVERNMENT INTERFERENCE IN BUSINESS AS VIEWED BY LEADING LAWMAKERS

THE PROGRAM of investigation for evidence upon which to base government control of big business has been going merrily forward. The bill for the control of the packing industry led to some interesting discussions as to the value of government control.

Senator McCumber, in a speech in the Senate upon the subject, said:

"I agree with that Harding philosophy which says: 'More business in government and less government in business.' The people are tired of being governed by bureaus and by commissions. When I recall the effect of the control of our railways by the government; the effect of the operation of our Shipping Board, the awful extravagance, the more than awful inefficiency that was exercised, I want to get away just as far as I can from commissions and go back to a government by law rather than a government by bureau, board, or commission. Government control and operation of railways bankrupted every railway in the United States, increasing the cost of transportation to an unheard-of extent, is primarily responsible for the present excessive cost of living. Government interference in the operation of coal mines has raised the price of coal beyond the reach of the public to pay, and except for providential interference in the form of a mild winter the suffering of the public would have been shocking. I insist the right, the logical, way to effect a remedy is to declare by law that any wrongful act shall be a crime, and then punish the violation. I would govern business by law and not turn it over to a commission to manage, knowing that their management is never efficient or economic."

FOLLOWING this same line of reasoning, Senator King voices his unalterable objection to government control and regulation of business. In part he said:

"Unfortunately we are accepting the unsound view that the people are incapable of looking after their own affairs, that they have become so enervated and devitalized that government officials and government flunkies and government bureaus are needed for their guidance and protection. There is an effort to apotheosize the federal government, to degrade the states, and to destroy the confidence of the people in themselves and in their capacity for self-government. We need apostles who will preach the doctrine that animated the founders of this republic, that inspired the Declaration of Independence and fired the hearts of the men and women who crossed the Atlantic and battled with powerful forces and menacing foes to establish liberty and the right of conscience and local self-government and self-determination and it is time that the American people should awaken to the fact that it is not coddling by the federal government that is needed, but that the future rests with the people themselves.

"Theodore Roosevelt preached the doctrine of the strenuous life as against the sloth and ease and lassitude which will result from the substitution of the government for the individual. There is nothing that so enervates the people as persistent governmental interposition in their individual affairs. Our greatness depends upon the assertion of a true and rational individualism, upon the recognition of the fact that the people themselves have the capacity for self government and for evolutionary development. Individual and national growth will not result from federal rules and regulations and 'cut and dried' policies based upon bureaucratic formula. No attempt must be made to place the American people upon a procrustian bed, built by national authority, and to commit to federal officials the right to determine whether we are too long or too short, whether our views conform to a uniform plan and a fixed and inexorable scheme, prepared by governmental authority. A static situation usually is the desire of officialdom. Uniformity is regarded as the goal of excellence and perfection by some, and they would rejoice to see all individuals and nations cast in the same mold."

NOTWITHSTANDING the general opposition to the creation of new government bureaus, there is frequently urged by men high in business life the creation of additional boards and bureaus. Jerome J. Levy in a recent article in the New York Journal of Commerce advocates that:

The federal government appoint a permanent board having the confidence of the laboring classes, whose function shall be to fix the relative scale of wages and the working conditions covering the labor employed in the various industries of the country. The rate of wages shall be based upon the labor, skill and danger involved in the occupation. Once the rate is determined, it should become the law of the land, equally binding upon employer and employee, with adequate penalties to insure its enforcement. The principle underlying the suggestion is that each man should be able to buy back from the common fund of wealth produced that part which he has contributed to it, and therefore its determination rightfully belongs to society and not to any individual or group of individuals.

The results of the above, according to Mr. Levy, would be:

1. To reduce the present antagonism between capital and labor.

2. To prevent strikes, for, as the determination of the rate of wages will not lie with the employers, it is hardly conceivable that any body of men will strike against society.

3. To put every industry and ever investor, irrespective of location, on the same competitive basis with regard to its labor.

4. To prevent excessive rises in prices based upon claims that wages had been advanced, or labor was inefficient, as was the case last year.

5. To obviate the necessity of delegates with their abuse of power, also the existence of dishonest labor leaders and employers.

6. To do away with child labor and woman labor under certain undesirable conditions.

7. To maintain the rate of wages at a time as at present, where it is absolutely necessary that the purchasing power of the country be maintained in order to preserve old values, and restore confidence.

8. To prevent depression, for, with wages standardized, commercial loans will show if merchandise is going into consumption or accumulating on the market.

AMONG THE INTERESTING addresses presented on the floor of the Senate against the bill to regulate the packing industry and primarily directed against government control of industries was that of Senator Fernald, who said:

"I believe this bill is merely the entering wedge for similar legislation for all private business engaging in interstate commerce and will be a long step in the direction of the nationalization or socialization of all private industry. It strikes at individual initiative and personal ambition. It is not a governmental function to meddle in private business as long as that business is conducted honestly and fairly, and government meddling is contrary to the history of this country and everything that has contributed to its greatness.

"This measure means bureaucratic govern-

ment for the packing business, and I am going to predict that it also means the same kind of government for all large business. If the bill becomes a law a group of men will be put in control of an industry which is the most sensitive to the law of supply and demand of any in the country, and the commission will have greater power than was ever before conferred by Congress. It will have power to legislate, to prosecute, and judge, and it may soon hamper the industry so as to affect the meat supply of the nation and even of the world."

CONSIDERATION by Congress of the various bills proposing the confiscation of big business has called forth considerable opposition by the press of the country. The Boston News Bureau has the following to say on the subject:

"On both sides of the ocean it is correctly insisted that the hand of government be lifted from the doing and the controlling of business—which it does so ill. Yet this is the time chosen for further or new experimentation here along such lines, in the way of 'regulation.'

"The Kenyon bill is passed with motives asserted to be in the interest of both the cattle-raiser and the meat-eater. By some magic it is expected that government will be able to raise the price of cattle, yet further cheapen the price of meat; and do it by hampering the very business mechanism which, by its form of organization, has done so much to achieve efficiency and economy.

"Now the Calder bill proposes to single out one industry, coal, and give to certain parts of the federal government almost autocratic powers over it, at their own discretion as to necessity.

"The world has been made supposedly safe for democracy. Now is the process one of making democracy unsafe for business?"

ALONG THIS SAME LINE the *Washington Post* in one of its issues comments upon the statement by Senator Elkins of West Virginia, attacking paternalism and government interference in private business. In part he says:

"It is a subject which has drawn forth pointed comments from the best brains of the country, and it may now be accepted as a fact that business men generally are opposed to the government interfering any more than is necessary with business affairs.

"That there must be regulatory laws in the public interest is conceded, as, for instance, the Sherman anti-trust law. Without that statute it would have been impossible for the government to put a stop to the orgy of combination and price-fixing which held full sway a few years ago until the Northern Securities decision brought it to a close. There are other regulatory acts which serve to prevent big business from imposing upon the public.

"But the tendency is now to go to the other extreme and authorize the government to practically take over certain lines of business.

"During the war circumstances compelled the government to intrude into private business, and representatives and senators readily voted for the operation and control of the railroads, for the Lever Act, for the establishment of the food and fuel administrations and for similar acts as war measures. Then it was a question of necessity. The government had to have transportation and supplies to the fullest measure. There was no question of economic policy involved.

"The government's incursions into the realms of business have not been marked by conspicuous success. From virtual ownership of railroads to running war workers' hotels in Washington, the result was the same—dislocation of business, stupendous waste and economic chaos.

"The interests of the American people must be conserved, but in doing this all possible freedom should be left to private business when it does not encroach upon the rights of the public."

ECONOMY which started with the people has finally made itself felt in no uncertain way in Congress. Senator Frelinghuysen in an address on national policy of economy said:

"In the reorganization of government departments we have a great problem to solve which should not be beyond American ingenuity or the constructive genius of the Republican Party. The Department of Labor should be reorganized and socialism eliminated. Millions of wage earners are out of employment. To offset this condition we must enact a tariff law which will cover the difference between the cost of production here and abroad, which will not only stimulate our manufacturers but protect our labor and its standards, not forgetting to enact laws which will prevent the destruction of those industries which have been wrested from Germany and established during the war and which were non-existent prior to the war. There is a middle ground by which we may harness the vast energies of American labor and the productive might of American capital to the task of making America supreme among all the nations of the world in productive capacity. The Republican Party has received a mandate not only to reconstruct the executive departments and our entire governmental administration upon a more business like and efficient basis, but to so revise the laws as to make them harmonize with the foreign and domestic needs of a country which has grown tired of arbitrary impediments to commerce and to the free expression of its intelligence, and a mandate to maintain our position as the first nation of the world."

THE GROWING TENDENCY of Congress to provide facilities for governmental competition with private enterprise has called forth very bitter criticism of this policy by members of the House and Senate who are opposed to the government's entering upon any enterprise which can be successfully carried on by private capital. SENATOR KING of Utah, in discussing the nitrate bill, said:

"I think that experience has demonstrated that economies are not obtained by governmental ownership and operation. The recent experience of the government in the manufacture of airplanes, ordnance, and other products, where the government literally spent billions of dollars, only shows a lack of achievement and waste and inefficiency. Of course, there are some undertakings which must be controlled by the government. But even those matters which are purely of a governmental character are controlled and directed at great cost and with results entirely disproportionate to the benefits derived. The frightful expense of bureaucracy and government operation and control of business is revealed in substantially everything which the government undertakes. We have in this country a bureaucracy which puts to shame the bureaucratic forms which we so often criticize in other countries, and if the federal government, in addition to the discharge of legitimate functions of government, shall undertake business operations and engage in commercial activities the army of federal employees will be increased beyond number and the oppressive burdens of the present and the past will be regarded as but silken threads measured by the heavy clanking chains which a triumphant bureaucracy will press upon the people.

"Democracy means a government of the people, not a government of officeholders for and by officeholders. A democracy does not mean a government which controls the private business of the people or which enters into those fields of activity which must, among a progressive and enlightened people, engage the efforts of individuals.

"I have repeatedly declared that if trusts and combinations in restraint of trade and organizations for the curtailment of production and the destruction of competition were permitted to go unchecked, it would force a change in our economic policy and lead to the assertion by the federal government of a drastic and perhaps oppressive control over the private enterprises of the American people. The Sherman anti-trust law and the Clayton Act and the Federal Trade Commission Act, if vigorously enforced, can do much to free the fields of private endeavor and of business activity from combinations in restraint of trade or which seek to prevent competition. Those who violate the law should be prosecuted and fined and imprisoned, and offending corporations should be dissolved."

IN AN ADDRESS before the Chamber of Commerce of Cincinnati, SENATOR POMERENE made some interesting remarks upon business adjustment. In part he said:

"The government cannot guarantee prices in time of peace. It cannot insure values. It ought not to attempt the impossible for one class unless it does for all classes. Paternalism by government in our involved situation seems to some extent to be necessary; but it does not follow that paternalism should monopolize the field of financial or industrial activity.

"I am firmly of the opinion that the expansion of our currency and our credit has gone almost, if not quite, to the limit. Any further expansion is liable to take us off a gold basis and give us a paper currency. If those Senators and Congressman who are seeking to take away the safeguards which protect our financial system will go to their home legislatures and persuade them to reduce the rates of interest to a point which borrowers can afford to pay, they will serve their constituencies better than by the course they are pursuing.

"Every thinking man who has studied economic conditions must realize that the period of high prices through which we have been going cannot continue forever. Readjustment must come.

"I would not have you think that I am pessimistic as to the outlook. I am an optimist. I look upon present conditions as one of the results following the world cataclysm and temporary in character. The same fine, indomitable American spirit which prepared for and largely aided in the winning of the world war for civilization and humanity will conquer in the face of present economic difficulties. A little of the spirit of give and take, by producer and consumer, by employer and employee, and a new era will dawn. The preachers of fads and fancies, of unrest and anarchy, may be heard for a little while, but they will melt away before the sober second thought of the country like mist before the rising sun. This is now and always will be the best land in all the world."

Mining and Petroleum Digest

COAL MINING PRONOUNCED A HEALTHY OCCUPATION.

COAL MINING is not unhealthy, according to conclusions reached by statisticians of the large insurance companies. The *Retail Coalman* publishes an article along this line which effectually combats the old idea that coal mining was decidedly injurious to health. Miners' asthma is rarely found in American coal mines today. The Prudential Life Insurance Company of America has conducted investigations which show that this ailment is not caused by breathing excessive quantities of coal-dust. In a series of mortality charts covering the experience of people exposed to dust of various kinds and contracting tuberculosis of the lungs and other respiratory diseases, it is shown that the death rate of men between the ages of 25 and 44 who were exposed to mineral dust was only 41.1 per cent. Men working in coal mines are included in this classification. The mortality rate for men exposed to animal and fiber dust is 49.7 per cent and the rate among men exposed to vegetable fiber dust is 49.5 per cent, whereas that among those exposed to general organic dust is 43.1 per cent, the rate in each instance being higher than that which prevails among coal miners.

The same company gives figures of industrial losses per $1,000 pay roll in the state of Pennsylvania. The losses in concrete construction amounted to 29.4 per cent, losses in anthracite mining amounted to 27.7 per cent, but the losses from accidents in bituminous mining was only 16.2 per cent, or less than those occasioned by accidents in logging, stevedoring, carpentry, open hearth steel work, blast furnaces, masonry, shipbuilding, saw mills and quarrying.

Figures gathered by the Metropolitan Life Insurance Company showed that the coal miner's average age at death is 3.4 years greater than the average of any of the following: bookkeepers and office assistants 36.8; railway enginemen and trainmen 37.4; plumbers, gas fitters, steam fitters 39.8; compositors and printers 40.2; teamsters, drivers, chauffeurs 42.2; saloonkeepers and bartenders 42.6; machinists 43.9; longshoremen and stevedores 47; textile-mill workers 47.6; iron moulders 48; painters, paperhangers and varnishers 48.6; cigarmakers and tobacco workers 49.5; bakers 50.6; railway track and yard workers 50.7; coal miners 51.3; masons and bricklayers 55; blacksmiths 55.4; farmers and farm laborers 58.5.

The average age of death for the above occupations is 47.9 years, whereas the average age of coal miners at death is 51.3 years. The coal miner's age at death is not only greater than the average in this classification but is greater than that of any persons included in this classification except masons and bricklayers, blacksmiths and farm workers.

The article in the *Retail Coalman* concludes with the following epitome of investigations conducted by the league of Red Cross societies, in which the relative dangers of coal dust and other characters of dust are discussed:

"Some kinds of dust are much more dangerous than others, a notable example being the difference between the effects of coal dust and silica particles. The silica particles, when they enter the lungs, set up a fibrosis, or fibrous condition of the tissues, which lowers the resistance to tuberculosis; hence it is that men in metal mines are liable to contract the disease. But coal miners, who live in about as dusty an environment as could be imagined, seem to thrive on the air that they breathe. Formerly is was explained that the minute particles of silica or similar substances were hard and sharp, and therefore more dangerous. But the coal dust is also often hard and sharp. When silica dust is mixed with coal or clay dust it becomes relatively harmless. Medical men, seeking an explanation for this, have found that there is a difference in the manner in which the lungs rid themselves of dusts of different kinds. Silica dusts are retianed by the lungs, while the coal dusts and soot seem to have some stimulating effect on the lung cells, and are promptly gotten rid of. In other words, when coal dust is breathed it is coughed out again or otherwise ejected through the nasal or mouth passages, while silica dust remains in the lungs and tends to render them less resistant to infection by tubercle bacilli.

"As a matter of fact, coal dust appears even to have a somewhat beneficial effect; coal miners as a class have a low tuberculosis rate. It is not known whether this 'good dust' has some peculiar antiseptic property, or whether it causes a biological reaction tending to aid him who breathes it in his resistance against tuberculosis. The practical application of these discoveries comes in the fact it now is suggested that in order to avoid the bad effects of quartz dusts, the attempt be made—not to get rid of the dust, but simply to mix with it a neutralizing dust of the coal or soot nature. Probably it will be possible, by adding coal to the dust that cannot be disposed of otherwise, to render it harmless; and just as stone-dusting is used in coal mines to prevent coal-dust explosions, so coal-dusting will be used in quartz mines to prevent miners' phthisis."

PLUTOCRATIC COAL DIGGERS.

SEVENTY-FIVE DOLLARS A DAY is a pretty good wage, and would probably be so admitted by every walking delegate and professional labor economist in the land. And that is exactly what Mr. Dan Lytle, of Ohio, earned between the rising and the setting of the sun a few weeks ago. Of course, this is an exceptional instance, but that it is not altogether an isolated one is shown by the circumstance that Mr. Lytle earned $382 for two week's work, and by the additional circumstance that Mr. Henry Menke, of Kempton, Md., earned $690 in one month. The *Washington Post*, in a dispatch from Cumberland, Md., carries the following account of Mr. Lytle's achievements:

"What is believed to be a record wage for a day's work was made last week by Dan Lytle, of Ohio. Lytle, employed at Kendall mine No. 1, of the Anderson Coal Co., mined 33.17 tons of coal in one day. The wage rate is $2 a ton with yardage additional, giving the man $75 for one day's work.

"In the first two weeks of November he drew $382. Coal at the mine is shot."

The following press dispatch from Kitzmiller, Md., gives an account of Mr. Menke's work and reward:

"Henry Menke, a miner employed by the Davis Coal and Coke Company at Kempton, is believed to have made the record among diggers employed along the Western Maryland Railway. In the first half of November he drew $356 in his pay envelope, and for the last half he was paid $334, a total of $690 for the month."

REDUCED COAL OUTPUT ADVOCATED

REFUSE TO PRODUCE until there is a market, is the advice given coal operators by the *Black Diamond*. After viewing the unsatisfactory situation as respects demand for coal, the publication concludes there is a demand for real courage on the part of the mine owner—courage to shut up shop, so to speak, until customers become more in evidence. Under the caption of "The Shortest Way Home," we read:

"The fight in the coal industry today is a fight for a market that will yield a profit. There is no market when sales of coal involve losses. The industry should fight to establish a market and at the present time the only way to establish a market is to refuse to produce coal that is not needed for present consumption.

"It takes a fighter's bravery, sometimes, to shut down mines, but it is a fighter's bravery that is needed. The public has not reached the intellectual level to date where it realizes that to produce coal that is not needed is to dissipate national wealth. We have long been a nation to talk conservation and to practice waste. The time has come when we must reverse the program, practice conservation and talk waste out of existence.

"There should be no consignment coal going to market. There should no longer be coal sold for freight. It is only cowards in the industry who have not the moral courage to close their operations when they have no profit-bearing orders to absorb their output. Such men are their own worst enemies as well as the worst enemies of the industry and the nation.

"Nineteen-twenty-one will reward fighters, but it will show no mercy to cowards. What the industry does as a whole during the next few weeks will determine the measure of its prosperity or adversity during the remainder of the year. If it measures production for the present by the needs of the present, it will establish a permanent prosperity that will justify the cost. If it foolishly floods the market with unabsorbable coal it will pay the penalty of a demoralized industry which it will take years to reconstruct."

COPPER FINANCING

SALE OF $40,000,000 short-term notes to finance American copper, now held as surplus without a market, has been proposed and, as might be expected for such a revolutionary project, has been the subject of lengthy discussions in financial circles. The proposition is handled by the *Journal of Commerce*, Chicago, in the following manner:

"The manner of handling the transaction is interesting. The National City company and Guaranty company, both New York investment organizations backed by strong banking institutions, will underwrite $40,000,000 8 per cent notes to run from one to three years. These will be distributed to individual investors and corporations all over the United States through bond selling organizations.

"Security will consist of the 400,000,000 pounds of copper which is held by various companies until such time as the export demand improves and arrangements can be made for its sale to foreign countries. As added backing for the issue there will be the personal guarantee of payment by the leading copper producing interests of the country.

"Under this arrangement the copper will be carried at 10 cents a pound valuation, which is about 3 cents below the current market rate. The metal under the terms of this financing, however, must be ear-marked for foreign consumption, as the provisions of the Edge law granted the privilege of agreements as to price and supply to combinations for export trade only.

"As far as the copper industry is directly concerned, the pooling of the 400,000,000 pounds of copper should have a salutary effect. An interest points out that it means virtually the passing from visible to invisible supply of a large quantity of copper for several years, and the requirements of the United States must come from new production, which is now being turned out at a very much reduced rate.

"Thus the mines will be permitted to again resume output and extend operations, as the copper surplus is no longer overhanging the market, but is a reserve stock from which to draw for supplying the European requirements, as the demand improves."

MOVING A WHOLE CITY

BIG THINGS are always in order in these latter times, and the mining industry is doing its share of them. Its latest contribution to the category of the colossal consists of the removal, bodily, of a whole city from a point overlooking extensive mineral deposits to a point where the subsurface is not so valuable. The scheme seems like sacrilege to the *Princeton* (Minn.) *Union*, which says:

"Hibbing is moving—that is, all her buildings are being transported a distance of a mile and a half to another site so that the Oliver Mining company, which owns the mineral rights underneath the village, may dig down into the bowels of the earth and remove the iron ore. The moving process will consume a couple of years. It looks like sacrilege to virtually shove this beautiful village—of which its inhabitants were so proud—aside merely because of the cupidity of man, and convert its site into a yawning abyss, but the property owners had no alternative. The steel trust is king. While the new Hibbing will in course of time doubtless attain a greater magnitude than the old, many years will necessarily roll along before it can even duplicate the streets, boulevards, sewers, lights, water mains and other municipal utilities, which it is estimated will cost $15,000,000."

SOUTHERN IRON ORE DEVELOPMENT

A NEW CHAPTER may be written in the history of Southern mineral activities, if the expectations indulged by certain north Georgia owners of ore properties are realized. The *LaFayette*, (Ga.) *Messenger* tells about it:

"Eastern capitalists are preparing to test the iron ore fields around Estelle and along the T. A. G. Railroad in Walker and Chatooga counties. The property is owned by Chattanooga people, and tests will be made by drilling and will be begun at once. The capitalists have options to purchase, which they will probably exercise if the field shows up well.

"It is said that the ore fields should yield 30,000,000 tons of iron ore and a tremendous development is going to happen if the fields show up well. The erection of a blast furnace would be one of the developments of the near future."

MANGANESE IN ALABAMA

SELMA IS EXCITED over the discovery of manganese in its immediate neighborhood. That the excitement has somewhat of a substantial basis is seen from the consideration that actual sales of the ore have been made to the Birmingham steel mills, which are only a short distance away. The *Manufacturers' Record* carried the following account:

"The discovery of manganese ore in the hills near Plantersville, Dallas county, about 20 miles north of Selma, followed by the sale of 10 car loads of the ore to Birmingham steel and iron interests, has aroused keen interest among residents of the section where preparations are now being made for developing the mining of the mineral. Representatives of various iron and steel companies are on the ground making investigations as to the quantity and quality of the ore, which is found in the chain of hills west and north of the Southern Railroad track and extend in a northwesterly direction, being a continuation of the Red Mountain range of Jefferson county where rich deposits of iron ore abound, and which furnish large quantities of raw product for the Birmingham plants.

"Morgan Richards, secretary of the Selma Chamber of Commerce, advises the *Manufacturers' Record* as follows regarding the discovery: "The outcroppings of this ore is in a stretch 8 or 10 miles long. No borings have been made developing the depth of the deposits, but we are now in correspondence with the state geologists with this end in view."

"The ore that has been shipped so far has been scrapped from the top of the ground on the hillsides, and what lies beneath is purely a matter of conjecture. The necessary materials for dynamiting have not been received, and it will be some time before a scientific survey of the fields can be completed. It is believed that the recovery of the values from the ore will not be difficult, and it is said that samples thus far have assayed about 22 per cent of mineral, a good showing for rock deposit of this kind."

PLATINUM MINE

ARKANSAS possesses what may prove to be the largest platinum mine in the world, according to the belief of some investigators whose findings are chronicled in the *Commercial Appeal* (Memphis, Tenn.). The article states that an assay of the ore taken from the field near Batesville lends strength to the hope that the Arkansas Mine may be of great value. The press dispatch follows:

"What may prove to be the largest platinum mine in the world has been found near here," says N. A. Stratton of Denver, Colo., who arrived in Independence County to make an investigation of the mine discovered by Pat Adams, near Sulphur Rock.

"Mr. Stratton is a chemist of international reputation and one who produced some of the most powerful explosives used during the late war, and his presence in this section is due to a recent trip made by one of the owners of the Sulphur Rock mine, who went to Denver with about 400 pounds of ore to have it assayed, and while in Denver met Mr. Stratton. When the mineral was assayed it proved to contain a very large amount of platinum. After his assay Mr. Stratton arranged to visit this section for a further inspection and to get samples fresh from the mines. He gives out the statement that the former assays made by a number of assayers, as well as himself, from over the United States are correct."

CHUNKS OF PLATINUM ore brought back from Russia have been used for door weights and as playthings for children in northern Michigan. A press dispatch from Cadillac, Mich., tells about it:

"Chunks of ore brought back from north Russia by soldiers of the Polar Bear expedition have been assayed and found to be almost pure platinum.

"Nelson Nolf of Harriette brought back several pounds of the glittering lead-like metal and it is believed he will realize about $18,000 on his find. Platinum is worth $200 an ounce. One young man from Marion found a piece the size of a wheat kernel and received $6 for it.

"The soldiers found the ore on the Dvina river, about 35 miles from Archangel. The metal was found while clearing a space for drilling.

"The ore Nolf found has been used as playthings by the children. One Cadillac man used a piece of the ore for a door weight. Every time the door was jarred open several dollars were knocked off the platinum."

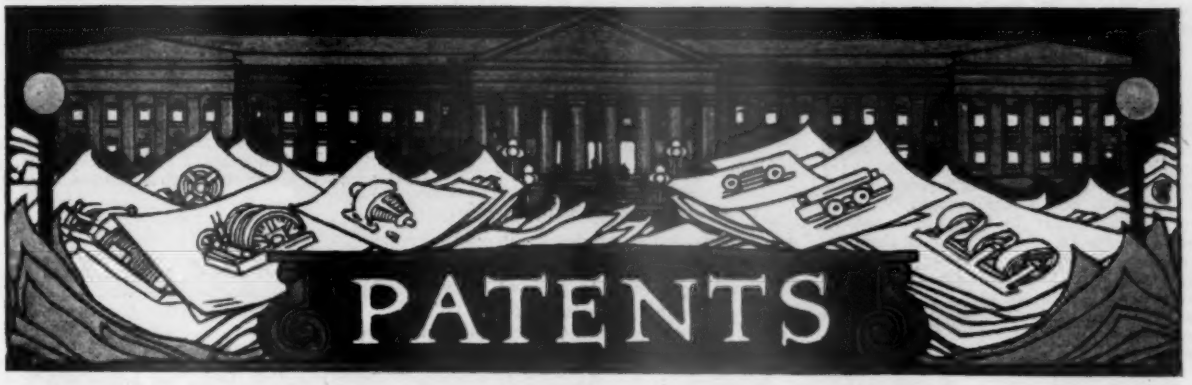
WORLD'S INTEREST IN MINING

CIVILIZATION DEPENDS in goodly measure upon mining, as Floyd W. Parsons points out in the *Saturday Evening Post*, Mr. Parsons deplores the slump in the metal mining industries, saying, in part:

"Civilization has been developed on a metallic basis, and the miner has been the real pioneer of industry and empire.

"Just now we are much disturbed by the slump that has taken place in our metal mining industries. From a time of unusual prosperity, caused by the war, the metal mining industry has settled down to a period of dullness and readjustment.

"Of the many problems the mining industry is now facing none are more important than the questions of tax reform, blue-sky legislation, standardization, a protective tariff and operating costs under new freight rates. In the matter of state mine taxation the metal producers are on solid ground in their contention that the so-called *ad valorem* basis of taxation for mining property is not economically sound as comparable to the same basis of taxation for real estate holdings or agricultural lands. When the miner produces the ore it becomes of value, is sold and thereafter can never be of value to that piece of property again. A mine can only show income by depletion of its fixed value, while a farm not only yields an annual crop providing a yearly income, but at the same time is likely to show an increase in land value which is not affected by the return from the annual harvest."



CONDUCTED BY JOHN BOYLE, JR.

1,362,968—*L. P. Steward*, Idaho Springs, Colorado, Dec. 21, 1920.

ORE SAMPLER.

1,363,760—*E. F. Caldwell*, Dec. 28, 1920.

ORE SEPARATOR comprising a movable tray, screen therein, and means for producing a compound movement of the screen, said movement being partly in the line of the tray movement, partly oscillatory in a horizontal plane, and partly a vertical movement.

1,363,970—*G. Grondal*, Djursholm, Sweden, Dec. 28, 1920.

LEACHING APPARATUS comprising a set of vats with curved bottoms placed in succession at different levels, swinging arms for moving the ore from one vat to the next higher vat, filters at the bottom of the vats and conduits leading therefrom to vats of a lower level.

1,363,990—*G. W. Morthland*, Lead, South Dakota, Dec. 28, 1920.

ORE GRINDING MACHINE comprising a rotary casing, disks of progressively decreasing thickness towards the discharge end and of different diameters, disposed within the casing, said disks being adapted to rotate relatively to one another when the casing is rotated, each of said disks being provided with a central opening forming a continuous passage through the said disks and having their confronting faces provided with radially extending grooves.

1,364,304—*C. L. Perkins*, Pittsburgh, Pa., Jan. 4, 1921, assigned to Metals Recovery Company.

FLOTATION PROCESS which comprises adding to the pulp a small amount of a substantially non-oleaginous organic mineral collecting agent which is substantially non-frothing.

1,364,305—*C. L. Perkins*, Pittsburgh, Pa., Jan. 4, 1921, assigned to Metals Recovery Company.

FLOTATION PROCESS which comprising adding to the pulp a small amount of an organic nitrogen compound containing two nitrogen atoms joined to each other.

1,364,306—*C. L. Perkins*, Pittsburgh, Pa., Jan. 4, 1921, assigned to Metals Recovery Company.

FLOTATION PROCESS which comprises adding to the pulp a small amount of a hydrazin compound.

1,364,307—*C. L. Perkins* and *R. E. Sayre*, Pittsburgh, Pa., assigned to Metals Recovery Company, Jan. 4, 1921.

FLOTATION PROCESS which comprises adding to the pulp a small amount of an organic nitrogen-sulphur compound.

1,364,308—*C. L. Perkins* and *R. E. Sayre*, Pittsburgh, Pa., assigned to Metals Recovery Company, Jan. 4, 1921.

FLOTATION PROCESS which comprises adding to the pulp a small amount of a thio-urea substance.

1,364,858—*C. L. Perkins*, Pittsburgh, Pa., assigned to Metals Recovery Company, Jan. 4, 1921.

FLOTATION PROCESS which comprises adding to the pulp a small amount of a substantially non-frothing, non-oleaginous, organic mineral collecting agent, subsequently adding an agent having good frothing properties and subjecting the mixture to flotation.

1,364,859—*C. L. Perkins* and *R. E. Sayre*, assigned to Metals Recovery Company, Jan. 4, 1921.

FLOTATION PROCESS which comprises adding to the pulp a small amount of a substantially non-frothing, non-oleaginous organic nitrogen sulphur compound as collecting agent, subsequently adding an agent having good frothing properties and subjecting the mixture to flotation.

1,364,903—*W. M. Thomas*, New York, N. Y., Jan. 11, 1921.

COAL CUTTING MACHINE, the combination with a machine base and shoes arranged one at each side of the center of the base, of a rocker for each shoe, each rocker being pivoted to the machine base, a shoe engaging block carried by each rocker and arranged to engage the corresponding shoe, and means for oscillating the rockers.

1,364,991—*John Hayes, Jr.*, Philadelphia, Pa., Jan. 11, 1921.

CONCENTRATOR comprising a box movably supported in a downwardly inclined position, riffles mounted transversely of the box and raised above the bottom thereof, jarring mechanism to cause the heavier constituents to move upwardly under the riffles and a structure for enclosing certain of the riffles at the upper end of the box to retain the heavier particles.

1,365,281—*Walter A. Scott*, River Forest, Ill., Jan. 11, 1921.

FLOTATION PROCESS comprising forming in the pulp bubbles containing a substance capable of reacting chemically with a substance contained in the pulp, thereby forming a flotation agent, and separating the bubbles with the solids adhering thereto from the remainder of the pulp.

1,365,598—*C. S. Oldroyd*, Knoxville, Tenn., Jan. 11, 1921.

MINING MACHINE comprising a rotatable neck having an axis which is relatively stationary and horizontal, means for actuating said neck, a cutting tool, devices for moving said tool on said neck at right angles to and toward and from the axial line of the neck and means extending along the axis of said neck for transmitting motion to said cutting tool independently of the movement of said supporting members.

1,365,822—*J. H. Gallup*, Denver, Colorado, assigned to the Gallup Shale Process Co., Jan. 18, 1921.

VERTICAL OIL SHALE TREATING RETORT.

1,365,881—*Albert Ball*, Claremont, New Hampshire, Jan. 18, 1921, assigned to The Jeffrey Mfg. Co.

MINING MACHINE comprising a flexibly fed, off-set position mining machine having a shoe on which it is normally fed along the mine bottom to cut a kerf adjacent the floor of the mine, and an auxiliary shoe on which said mining machine may be mounted and with which said mining machine may be flexibly fed and flexibly positioned for cutting a kerf at a higher level.

1,365,922—*N. E. Katz*, Meridian, Miss., Jan. 18, 1921.

RECOVERING SULPHUR IN SULPHUR ORES which consists in heating the ore in an auto clave in the presence of water to a temperature sufficient to melt the sulphur by means of the generated steam.

1,366,087—*M. E. Layne*, Memphis, Tenn., Jan. 18, 1921.

WELL SCREEN comprising a perforated casing having grooves therein adjacent to the perforations, said grooves gradually deepening toward the perforations and a helix of screening wire wound on the casing, the strands of which are adapted to fit into the groove.

1,366,371—*E. M. Erickson*, Ray, Arizona, Jan. 25, 1921.

MINER'S LAMP.

1,366,456—*J. S. Highfield*, London, England, Jan. 25, 1921.

METHOD OF MINING CLAY consisting in forcing a liquid in a stream against a clay face, collecting the resulting liquor in a collecting vessel and returning said liquor in the stream against the clay face until a desired degree of concentration of clay suspended in the liquor is attained passing the liquor into a settling plant, adding a relatively small percentage of an electrolyte to the liquor, allowing the liquor to settle and then pumping the liquor to a treating plant for extracting the clay from the liquor.

1,366,651—*Harry W. Hardinge*, New York, N. Y., Jan. 25, 1921.

GRINDING MILL comprising a rotatable hollow drum having an outlet portion whose interior is frusto-conical for automatically classifying the material according to size on rotation of said drum and provided with outlet means for discharging fines at the periphy a conical section of said frustum, and a plurality of cone shaped members loosely mounted within said outlet portion of said drum and with their smaller end toward the outlet opening.

1,366,660—*E. B. Hoover*, Walla Walla, Washington, Jan. 25, 1921.

ORE SEPARATOR.

1,366,766—*J. M. Callow*, Salt Lake City, Utah, Jan. 25, 1921. Assigned to Pneumatic Process Flotation Company.

PNEUMATIC FLOTATION CELL. The process of preventing the blanketing of a permeable septum forming the bottom of a bubble flotation separator, consisting in subdividing the pulp body longitudinally of the separator into a series of bodies having closely restricted communication only in the plane immediately above the permeable bottom, and creating in each body in proximity to the points of communication, eddies adapted to scour the surface of said bottom and transport material having a tendency to settle on said bottom through the separator.

1,366,767—*J. M. Callow*, Salt Lake City, Utah, Jan. 25, 1921. Assigned to Pneumatic Process Flotation Company.

ORE FLOTATION comprising a pulp receptacle, means for forming substantially uniformly distributed bubbles within the tank and means for exhausting the bubbles from the upper surface of the pulp.

PATENT OFFICE "SWAMPED"—LARGER FORCE NEEDED

THE YEAR 1920 brought to the Patent Office its biggest business in number of applications filed. There was an increase of 43 per cent over 1918 and of 7 per cent over 1919, which itself had smashed all previous records. The increase in trade-mark applications was 27 per cent over 1919 and 126 per cent over 1918. Total applications, including designs, labels and prints, were 54 per cent greater than in 1918 and 10.4 per cent greater than in 1919.

The work of the year was also greater than that of the year before by the following percentages: number of drawings made for inventors, 20 per cent; drawings corrected, 13 per cent; deeds recorded, 35 per cent; words of manuscript, 46 per cent; photographic copies of drawings, 20 per cent; photostat copies furnished, 20 per cent; printed copies of patents distributed, 25 per cent; letters written, 9 per cent.

Activity was especially marked in the trademark division. There were 10,282 trademarks registered as compared with only 4,208 in 1919. The increase over 1919, which was a normal year, was 144 per cent. The increase in design patents granted was 63 per cent, and in registration of labels and prints 50 per cent.

In publishing the report of the Commissioner of Patents for the year, the Secretary of the Interior calls attention to the limited force and extra work which is being done in the Patent Office. He points out that on February 15 there were 40,000 applications for patents piled up awaiting examination. Handling of these applications alone will amount to as much work as was done during the entire year of 1900. At the present time an application for a patent is handled about seven months after it is received. The Secretary of the Interior says that work is still piling up and that unless a remedy is provided work at the Patent Office will lag behind even more in the future.

Patent Office receipts increased during 1920 to the extent of $262,876.54. The increase amounted to 10 per cent. The favorable balance earned was $107,850.50, but if the bonus, which is not charged to the Bureau in any appropriation, be omitted from consideration, the net favorable surplus amounts to $327,776.69.

The Commissioner of Patents, in asking for a larger force and somewhat higher salaries, has called attention to the favorable balance in Patent Office receipts.

MINING MAN APPOINTED TO WAR FINANCE CORPORATION

E. A. HAYES, of California, who is president of an iron company and also interested in gold mining and newspapers, was appointed early in February a member of the War Finance Corporation. His appointment, and that of W. W. Warwick, comptroller of the treasury, completed the corporation's personnel. Mr. Warwick was secretary to W. H. Taft when the latter was a circuit judge. Mr. Hayes was a member of Congress from 1905 to 1919.

NOVEMBER REFINERY STATISTICS.—Gasoline production in November, 1920, approximated 452,000,000 gallons, Bureau of Mines calculations. The daily average was 15,088,000 gallons, or 62,000 gallons more than that of October. Kerosene production increased 300,000 gallons daily and lubricating oils 32,000 gallons. During the month there were in operation 326 refineries with a daily capacity of 1,698,295 barrels. This was a decrease of six refineries and an increase of 1,350 barrels daily capacity as compared with October.

INDUSTRIAL NOTES

The Raleigh-Wyoming Coal Company, of Charleston, West Va., announces the removal of its offices from 801 Virginia Land Bank Building to Room 212 Professional Building, corner of Quarrier and Broad Street, Charleston.

The Hendrick Manufacturing Company, of Carbondale, Penn., has opened an office at 915–916 Union Bank Building, Pittsburgh.

The Adamson Manufacturing Company, East Palestine, Ohio, has added a new department for the manufacture of all kinds of storage, pneumatic and pressure tanks, welded pipe, battery casings, evaporators, condensers and a large line of arc-welded products.

The Denver office of the Jeffrey Manufacturing Company has been removed from the First National Bank Building to 421 United States National Bank Building.

The Jeffrey Manufacturing Company has issued catalogue No. 257, on standardized scraper conveyors. The catalogue features single and double strand conveyors for all industries, including mines, power plants and coal yards.

Catalogue No. 280 on "Mine Fans" has been issued by the Jeffrey Manufacturing Company of Columbus, Ohio. In addition to many interesting illustrations and descriptions of the "Stepped-Multi-Bladed" and other types of fans, this catalogue contains valuable data, formulas, and other information on mine fans and mine ventilation that will enable those interested in the ventilation of mines to solve their problems in a highly efficient manner.

Pump Data No. 62 and Pump Data No. 63, have been issued by the Aldrich Pump Company of Allentown, Pennsylvania. The catalogues contain twenty-four and eight pages, respectively, of cuts, tables and descriptive matter.

ALASKA CHAPTER MEETS

BUSINESS AND PLEASURE were combined at a meeting of the Alaska Chapter of the American Mining Congress on January 14 at Fairbanks. Authorization was voted for continuance of the drive begun earlier in the year to enlist the enthusiastic co-operation of all the chapter's members, and good results are expected. A six-reel motion picture entitled "Safety Methods in Metal Mining," produced by the Bureau of Mines, was shown.

REVISED LEAD OUTPUT REPORT.—Latest Geological Survey figures give the 1920 lead production of the country as 483,000 tons, instead of 511,000 tons, as first reported, and the increase over 1919 as 40,000 tons instead of 68,000. Southeastern Missouri's production was 155,000 tons instead of 183,000.

γεννάω–I Produce!

ONE hundred and forty-four years ago Lavoisier coined the name *Oxygen.*

In choosing the Greek word Γεννάω "I produce," as his main root he had in mind a chemical reaction commonly associated with the gas.

Had Lavoisier been able to foresee the tremendous part that Linde Oxygen is playing in modern industrial development, he would have realized the vast significance of that word Γεννάω "I produce!"

The country over, Linde Oxygen is daily making possible greater production—everywhere it is saving time and cutting costs.

A chain of seventy-five Linde plants and warehouses assures American welders and cutters of a prompt supply of highly pure oxygen—wherever they are, whatever their requirements.

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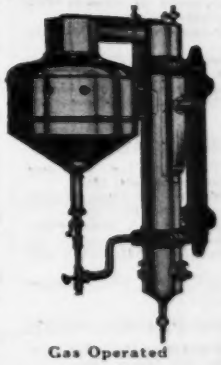

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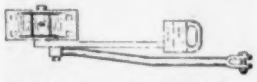

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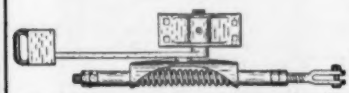

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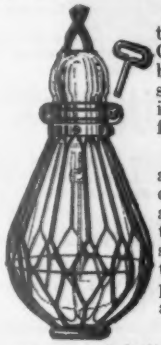

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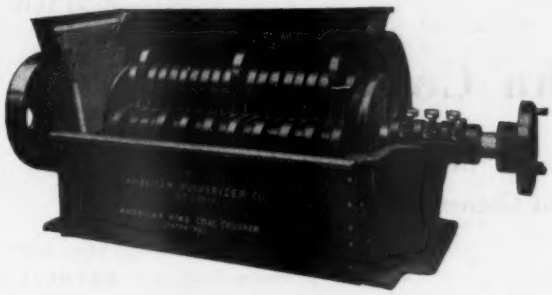

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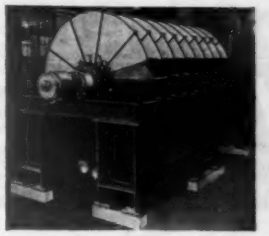

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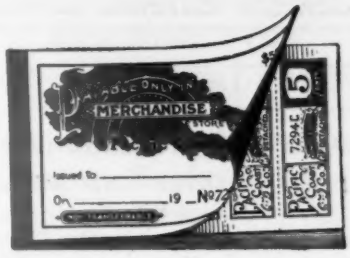

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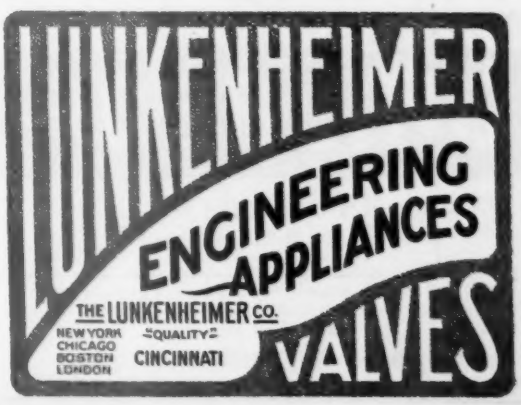

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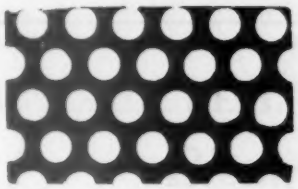

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Orr Woodburn, Safety First Director, Globe-Miami District, Globe, Ariz.
A. A. Krogdahl, Safety Engineer, Oliver Iron Mining Co., Virginia, Minn.
Guy J. Johnson, Safety Engineer, Homestake Mining Company, Lead, S. Dak.
H. J. Rahilly, Superintendent, Mine Fire & Hydraulic Filling Dept., Anaconda Copper Mining Company, Butte, Mont.

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INDEX TO ADVERTISERS

	Page
Allis Chalmers Mfg. Company	8
Allison Coupon Company	37
Ameling Prospecting Company, H. R.	46
American Cyanamid Company	4
American Mine Door Company	31
American Pulverizer Company	35
American Steel & Wire Company	16
American Zinc Lead & Smelting Company	18
Anaconda Copper Mining Company	12
Automatic Reclosing Circuit Breaker Company	37
Bardwell, Alonzo F.	38
Barrett Company, The	31
Bertha Coal Company	46
Boyle, Jr., John	38
Burlingame, Walter E.	38
Business Men's Clearing House	31
Car Dumper & Equipment Company	14
Central Frog & Switch Company	33
Channon Mfg. Company, James H.	25
Chicago Belting Company	Cover
Chicago Perforating Company	38
Clinchfield Coal Corporation	46
Connellsville Mfg. & Mine Supply Company	35
Denver Rock Drill Mfg. Company	3
DuPont de Nemours and Company, E. I.	21
Edison Storage Battery Company	Cover
Electrical Material Company	41
Flexible Steel Lacing Company	33
General Electric Company	33
General Naval Stores Company	16
Goodman Mfg. Company	15
Hendrick Manufacturing Company	41
Hercules Powder Company	20
Hockensmith Wheel & Mine Car Company	29
Hoffman Brothers	38
Holmes and Brothers, Robert	6
Hunt and Company, Robert W.	39
Indiana Laboratories Company	38
Ingersoll-Rand Company	7
Ironton Engine Company	10
Irvington Smelting & Refining Works	41
Jeffrey Manufacturing Company, The	Cover
Koppers Company, The	19
Lalor Company, W. M.	29
Ledoux & Company	39
Lehigh Coal & Navigation Company	43
Leschen & Sons Rope Company, A.	12
Lidgerwood Manufacturing Company	14
Lincoln Steel & Forge Company	11
Linde Air Products Company	27
Lunkenheimer Company, The	39
Mancha Storage Battery Locomotive Co.	6
Mikesell Brothers Company	37
Mine Safety Appliances Company	45
Mine Equipment and Supply Company	46
Morse Chain Company	23
Myers-Whaley Company	35
National Fuse and Powder Company	39
New York Engineering Company	10
Nicholson & Company, W. H.	38
Nordberg Manufacturing Company	24
Ohio Brass Company	31
Pennsylvania Smelting Company	41
Phelps Dodge Corporation	39
Piers, W. L.	38
Randolph, H. F.	38
Read Company, R. G.	38
Roberts & Schaefer Company	45
Roebling's Sons Company, John A.	41
Roessler & Hasslacher Chemical Company	17
Scaife & Sons Company., William B.	46
Shourds-Stoner Company	37
Stephens-Adamson Mfg. Company	26
Stonega Coke & Coal Company	45
Stonehouse Steel Sign Company	41
Streeter-Amet Weighing & Recording Co.	33
Thorne, Neale & Company	43
Union Assay Office	38
Union Electric Company	29
United Filters Corporation	35
United Iron Works	39
United Metals Selling Company	18
Vulcan Iron Works	9
Washburn, Bailey and Mitchell	38
Watt Mining Car Wheel Co.	9
Westinghouse Electric & Mfg. Company	41
West Virginia Rail Company	21
Wilmot Engineering Company	41
Worthington Pump & Machinery Company	13

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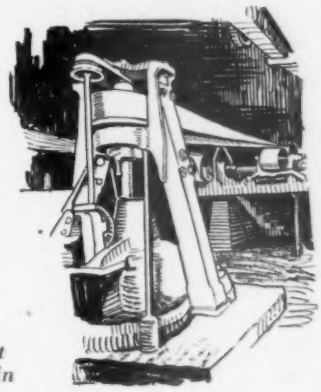

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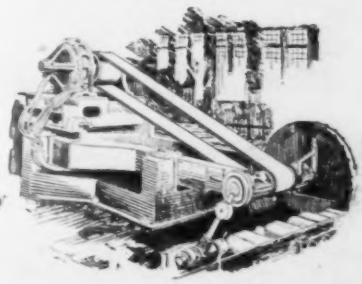

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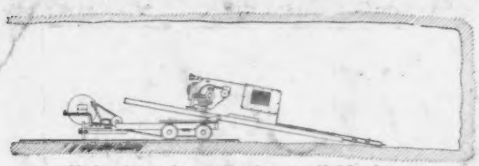
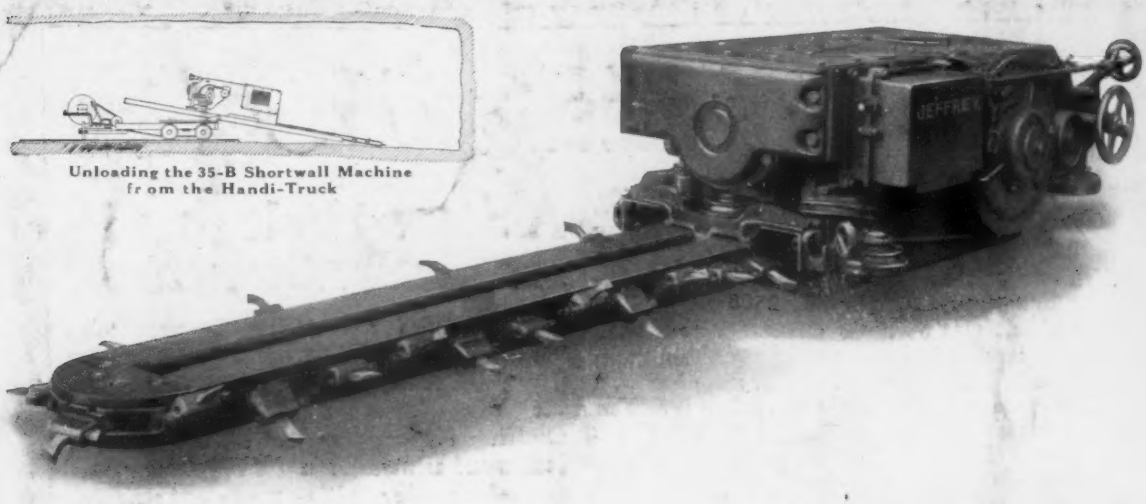


Unloading the 35-B Shortwall Machine
from the Handi-Truck



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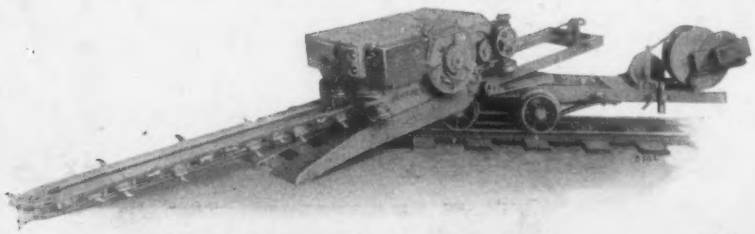

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